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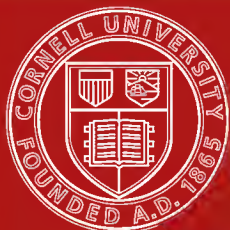
yr. 1900/01

A book of creamery and cheese factory ap



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A
Book
of

Creamery and Cheese

Factory

Apparatus and Supplies

ILLUSTRATED



1900—1901

Creamery Package M'fg. Co.

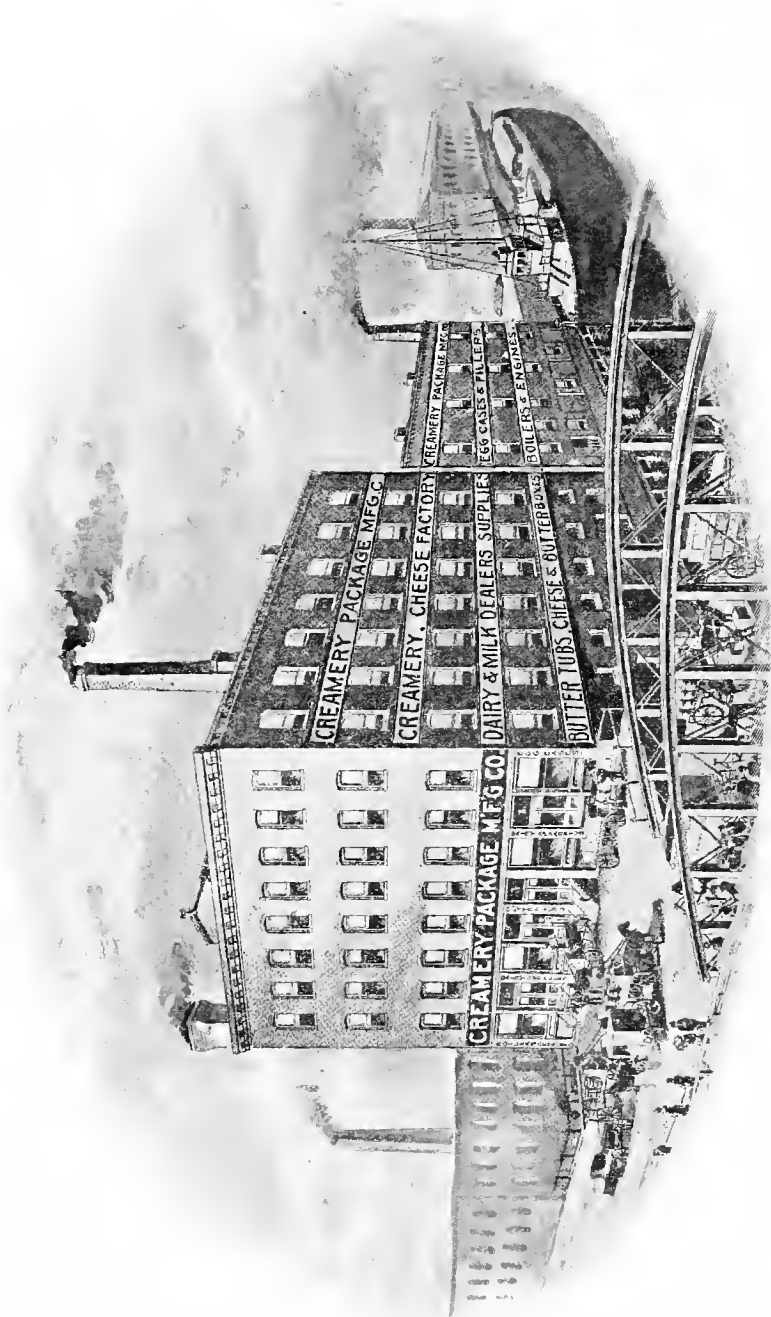
CHICAGO

Kansas City, Mo.

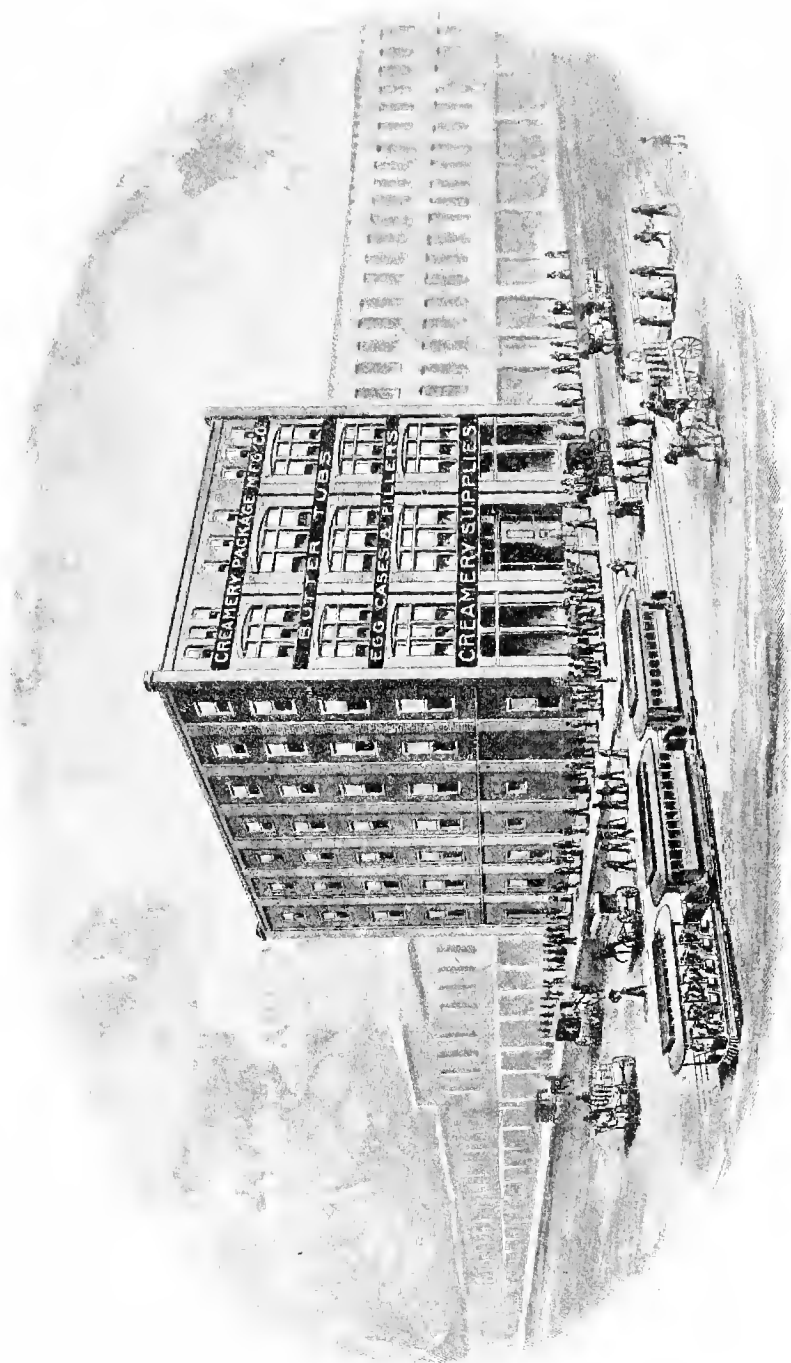
Waterloo, Iowa

Minneapolis, Minn.

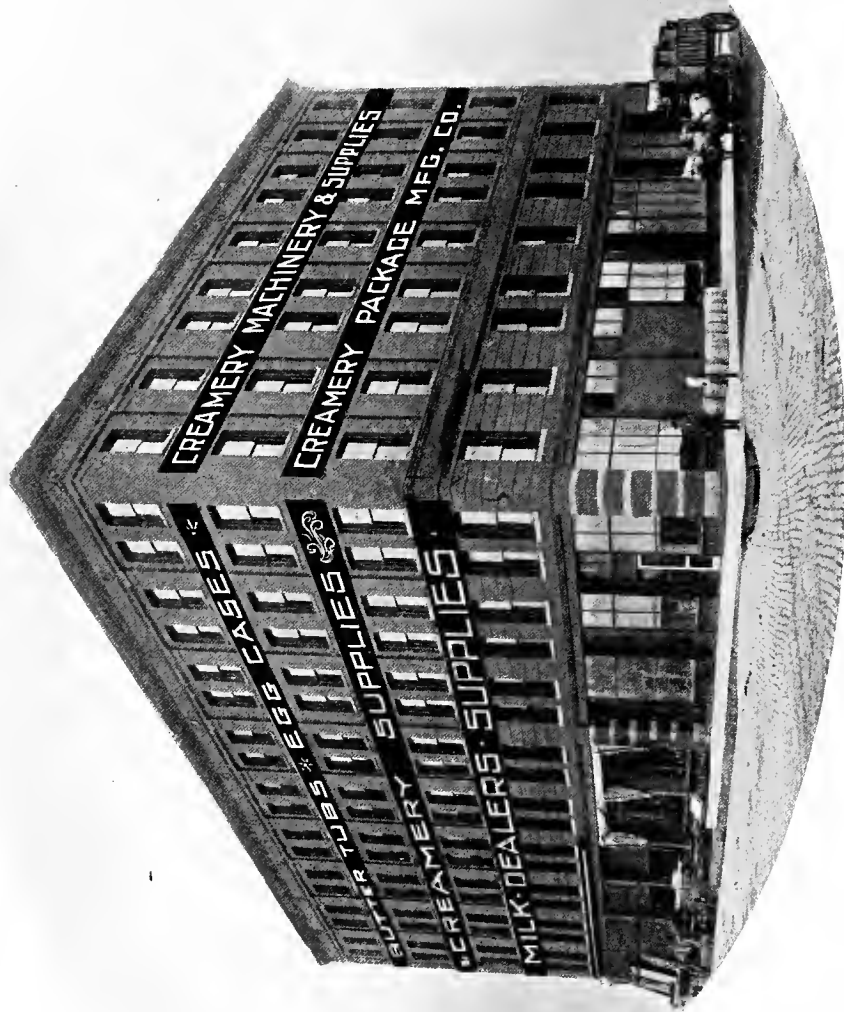
Omaha, Neb.



MAIN OFFICE AND WAREHOUSE—1, 3 and 5 West Washington Street, Chicago, Ill.



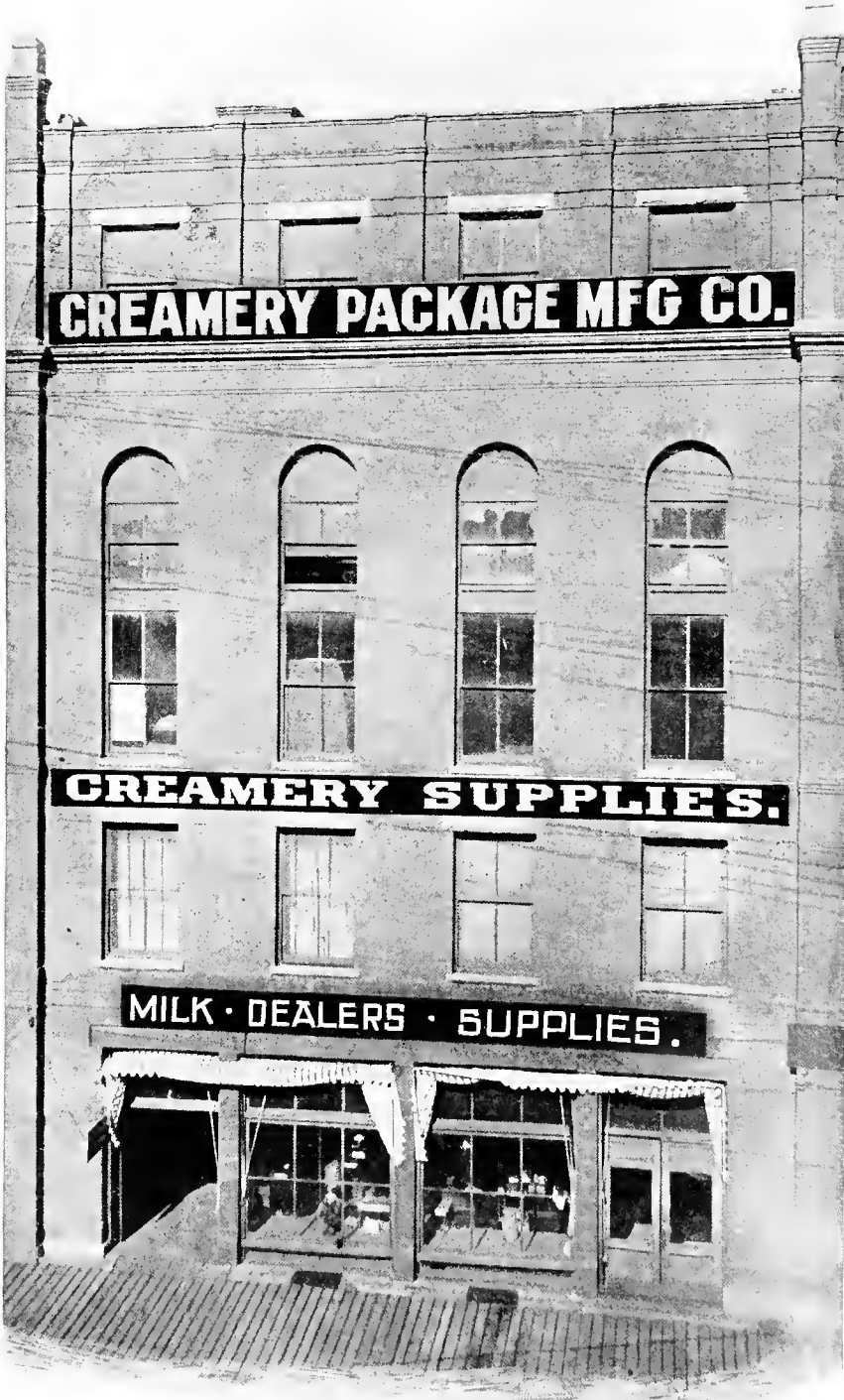
BRANCH HOUSE, KANSAS CITY, MO.



BRANCH HOUSE, MINNEAPOLIS, MINN.



BRANCH HOUSE, WATERLOO, IOWA.

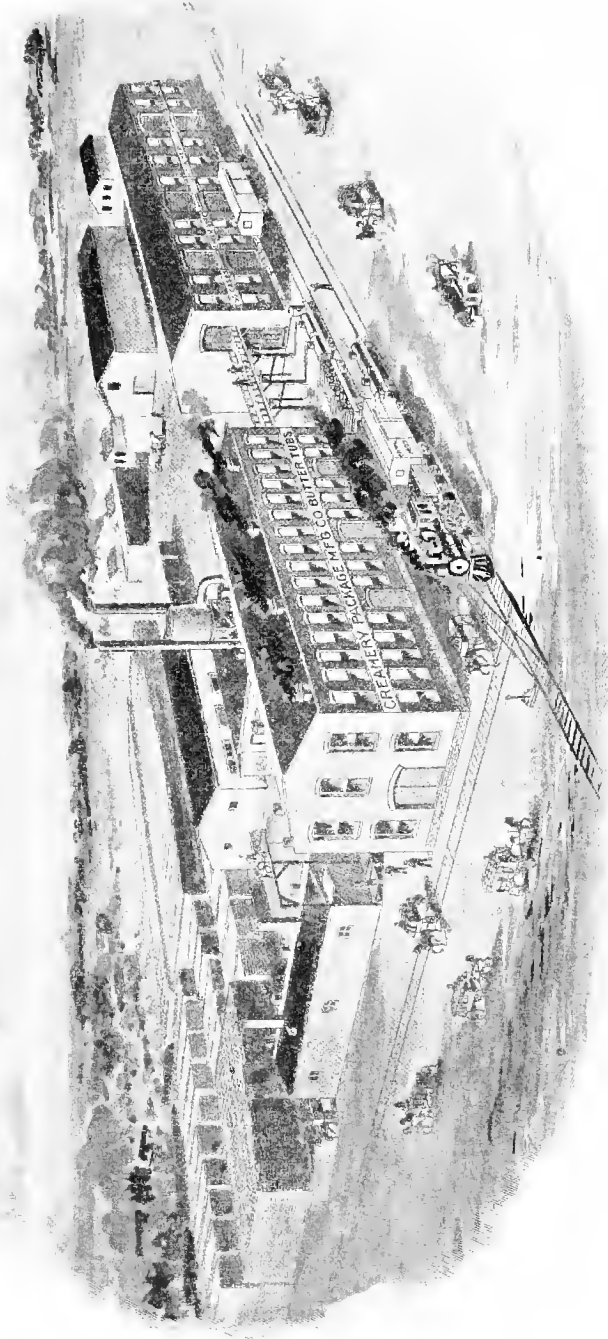


CREAMERY PACKAGE MFG CO.

CREAMERY SUPPLIES.

MILK · DEALERS · SUPPLIES.

BRANCH HOUSE



FACTORY, MANKATO, MINN.

To the Trade.

In presenting our 1900-1901 catalogue, we desire to express our appreciation of many favors from our customers. Our company has grown with the growing Dairy industries, until we believe that we can safely say that we are the largest Dairy Supply House in the world.

Our catalogue will be found to contain a complete line of Creamery, Cheese Factory and Dairy goods. We have not tried to illustrate or list everything that we manufacture and sell. We are continually publishing small catalogues and price lists of specialties, which will be promptly furnished on application.

We now manufacture nearly everything that we sell. Our Butter Package Factories have better facilities than ever before. Our mechanical specialties, such as Disbrow Combined Churns, Ideal Skim Milk Weigher, Ideal Turbine Tester, Refrigerating Machines, continue to hold their places of superiority in their respective lines.

It is our intention, by anticipating the wants of our customers, to be always in position to supply the latest and best goods in these lines.

We hope that this catalogue will be found of value to our customers, and that it may help us to the continuance of our past pleasant business relations.

NOTICE

All goods are delivered to the railroad and express companies in good order, and we cannot be responsible for their condition thereafter. **We would urge upon you the necessity of examining** all goods before receipting for same, and if damaged, note same on carrier's receipt. With these precautions taken, damages can be collected.

In ordering, always give **Full Name, Post Office Address, Railroad Station, County and State**, and whether to be shipped by **Freight, Express or Mail**. We will not be responsible for loss of goods ordered shipped by mail.

When persons ordering goods are unknown to us, or their rating is not given by the mercantile agencies, the order should be accompanied by cash or references as to financial standing. We cannot ship goods C. O. D. unless enough money is advanced on them to pay transportation charges both ways. In re-mitting, please do so by postal note, express order or draft on Chicago or New York.

RETURNED GOODS. We do not allow goods to be returned unless special arrangement is made relative thereto. We cannot assure our customers that their accounts will receive proper credit for returned goods unless the following instructions are strictly followed.

Goods must be marked plainly, both with our name and the shipper's.

On date of making shipment, we must be notified by mail regarding same, giving full list of goods returned, and stating in care of what transportation company shipment was made. If by freight, enclose shipping receipt.

All specifications and prices given herein are subject to change without notice. Write for our monthly price current or quotation.

TERMS

30 days, net cash; 1 per cent. discount in 10 days.

If ordering of us for first time, send us name of some one in this city with whom you are dealing.

Yours respectfully,

CREAMERY PACKAGE MANUFACTURING COMPANY.

BOILERS AND ENGINES

We are agents for the largest manufacturers of boilers and engines in this country.

In this Catalogue we aim to describe only such rigs as are adapted to creamery and dairy work.

Our engines are built from entire new patterns, with the latest improvements. Special attention has been paid to make all parts plain, simple, strong and durable; all the wearing surfaces are unusually large. The *Material* throughout is the best, and they are well made with the latest improved machinery, thereby securing accuracy and durability. The *Frames* are strong and well shaped. All the *Cylinders* have *Hot Air Jackets*, which decrease the condensation in the cylinders. The arrangement of the *Steam Chest* and *Steam Ports* is such that all the water forming in the cylinders is readily carried off, the *Ports* extending below the bottom of cylinders; and the heaters being still lower, a perfect drainage is secured. The *Pumps* are large and simple, firmly secured to cylinders and unable to get out of alignment; they are provided with large *Air Chambers* and *Brass Valves* and *Seats*, which can be readily taken out and replaced while the engine is working at full speed. The *Center Cranks* are large and made of solid forgings, and are not liable to break. The *Pistons* are fitted with self-adjusting steam packing rings, and do not require any attention, nor do they cut the cylinders; they are a great improvement over any other kind of packing. The *Connecting Rods* are of the most substantial character—of wrought iron, with straps, bolts and keys to take up the wear of the brass boxes. The *Governors* regulate the speed of the engines perfectly; they are provided with "speeders" to change the speed of the engines while in motion, and also with a hand lever attachment to the valve, which is convenient for controlling the speed of the engines when a uniform speed is not wanted, as when sawing, for instance. The *General Design* of our engines is neat and compact.

The boilers are all made from the *VERY BEST* 60,000 lb. tensile strength *Steel*, and are thoroughly tested before leaving the shop. The specifications are, as you will note, very liberal.

We carry the largest stock of these goods of any *Dairy Supply House* in this country, and our facilities for handling them are of the best.

If you do not find what you want herein, write, giving description of what you require, and we will quote you.

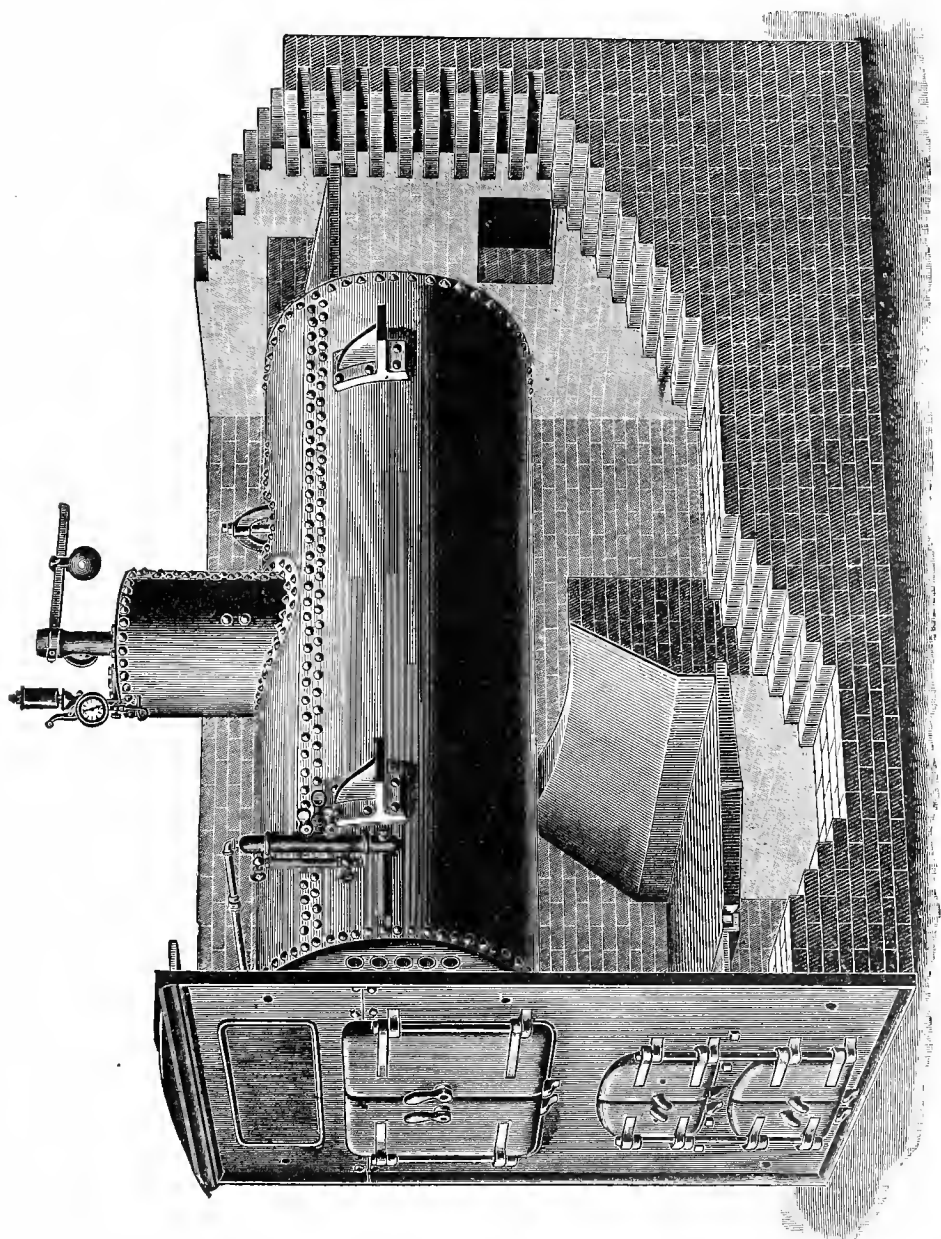
RULES FOR FIREMEN

ON THE CARE AND MANAGEMENT OF STEAM BOILERS

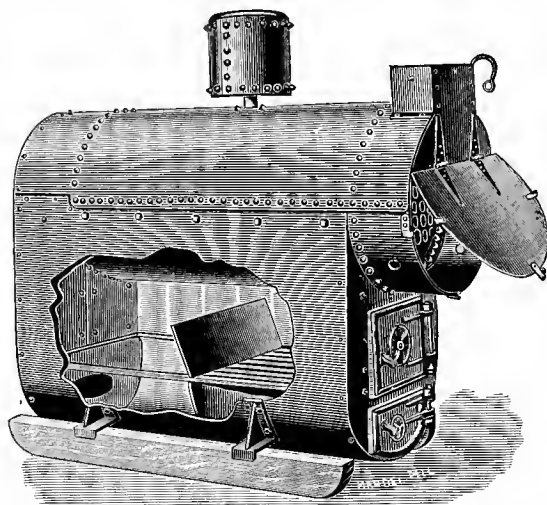
1. **Height of Water.**—Inspect carefully the amount of water in Boiler. Don't rely upon Water Gauge, as it becomes stopped up; but try Gauge Cocks and see that there is at least 2½ inches of water over flues or crown sheets. Don't unbank fire or renew fuel until you are satisfied with the amount of water in Boiler.
2. **Low Water.**—When water is found below the Gauge Cocks, DON'T turn on the feed, and don't tamper with nor open the Safety Valve. Let the Feed, Safety Valve and steam outlets remain as they are. Cover the fire over with ashes or fresh coal (slack, if handy), or in case of firing with wood *withdraw* the fire and swing open the fire doors.
3. **In Cases of Foaming.**—Close Throttle and keep closed long enough to show true level of water. If that level is sufficiently high, feeding and blowing will usually suffice to correct the evil. In cases of violent foaming, caused by dirty water, or change from salt to fresh, or *vice versa*, in addition to the action above stated, check draft and cover fires with fresh coal.
4. **Safety Valve.**—Never put any additional weights on Safety Valve lever. See that it corresponds in blowing off with pressure indicated by Steam Gauge. Inspect frequently by raising the lever cautiously, as the valves may become stuck to seats and useless for the purpose intended.
5. **Feeding.**—Never feed the Boiler with cold water, but use some good form of heater. Not only is considerable fuel saved by this, but repairs to Boiler also. NEVER FEED in the front end of a boiler (unless the pipe is carried well through to the rear end). If fed through the front end lime and other impurities are precipitated on the sheets over the fire, making them liable to bulge, sag, leak and crack.
6. **Leaks and Blisters.**—As soon as found, they should be properly repaired.
7. **Blowing Off.**—Blow off at least once in two weeks, every Saturday night would be better. In case the feed water is muddy, blow down a few inches *every day*. *Boilers should never be blown out while hot*, as the walls, plates, flues and braces retain sufficient heat to bake the deposits of mud into a hard scale that becomes firmly attached to their surface, and with the outer walls and bridge wall hot there is danger of injury to the plates in the boiler. The boiler and walls should always be allowed to cool down before water is run out; the deposit of mud and scale will then be quite soft, and can be easily washed out with a hose from all accessible places. Many engineers suppose that blowing out a boiler under pressure has a tendency to remove these deposits from a boiler, but experience has shown this to be a very grave mistake.
8. **Removing Deposit and Sediment.**—In tubular Boilers the man-hole should be often opened, and all collections removed from over the fire. (For extracting lime and other impurities, see our "Phospho" and Heaters.)
9. **Mud Drums.**—Inspect carefully and as often as you do the Boiler. Remove the man-head and clean out. Mud Drums are frequently the source of accidents, as they are liable to give out before the Boiler does, and are often placed in inaccessible places where they are overlooked.
10. **Firing.**—In firing with coal, keep your grates covered with a thin fire. Fire often and not too much at a time. If too fast in steaming, close dampers and shut off draft.
11. **Cleanliness.**—It is important that the sheets of the Boiler and all fittings, particularly the Feed, be kept clean and free. Tubes, Flues, Smoke Connection and Boiler Room should be well swept.

STATIONARY TUBULAR STEEL BOILERS

With Full Arch Front



THE ECONOMIZER BOILER



This Boiler is well adapted to work requiring moderate power in a small compass. It is also designed for all places where a Boiler of a semi-portable nature is required or where brick is scarce and masonry work expensive.

It is a Horizontal Return Tubular Boiler set in a wrought iron casing. This casing is protected from the fire by a fire-brick lining. The fire is built under the Boiler, the heat passing along the bottom of the Boiler and returning through the tubes to the smoke box in front.

The bridge wall is adjustable to different lengths of fuel. The price is low. It is safe, durable, easily cleaned and a rapid, economical steamer.

Largely used in Creameries, Grain Elevators, Brick Yards, Cotton Mills and small manufacturing plants generally.

SPECIFICATIONS OF ECONOMIZER BOILER

Furnished with or without Detachable Dome.

Size Number.....	71	72	73	74	75	76	77	78	79
Cipher.....	Ear	Egg	Elm	Elk	Eden	Echo	Earl	Ella	Erie
Horse Power, nominal rating.....	4	5	6	7	8	10	12	15	20
Diameter of shell.....in.	24	26	26	30	30	30	30	34	34
Number of 3-in. tubes.....	15	15	15	22	22	22	22	28	28
Length of tubes.....ft.	3	4	5	5	6	7	8	7	9
Length of grate.....in.	20	24	24	24	30	30	30	36	36
Width of grate....."	20	20	20	24	24	24	24	30	30
Thickness of shell....."	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
Thickness of heads....."	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{1}{8}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{3}{8}$
Diameter of smoke stack....."	13	13	13	13	13	13	13	15	15
Length of smoke stack....."	12	12	12	18	18	18	18	18	18
Width over all....."	31	31	31	36	36	36	36	42	42
Length over all....."	59	71	83	83	96	109	123	113	137
Weight, boiler with extras.....	1800	2200	2500	3100	3700	4000	4500	5100	6630

With this Boiler the following fixtures and fittings are furnished: Fronts, including fire door, ash door and smoke box with swing door, adjustable bridge wall, grate bars, bearing bars, and a full set of fire brick lining, safety valve, steam gauge and siphon, glass water gauge and barrel with gauge cocks, whistle, blow-off cock, stop valve, check valve, smoke stack and damper with galvanized guys four times the length of stack. Anything else ordered will be charged for extra.

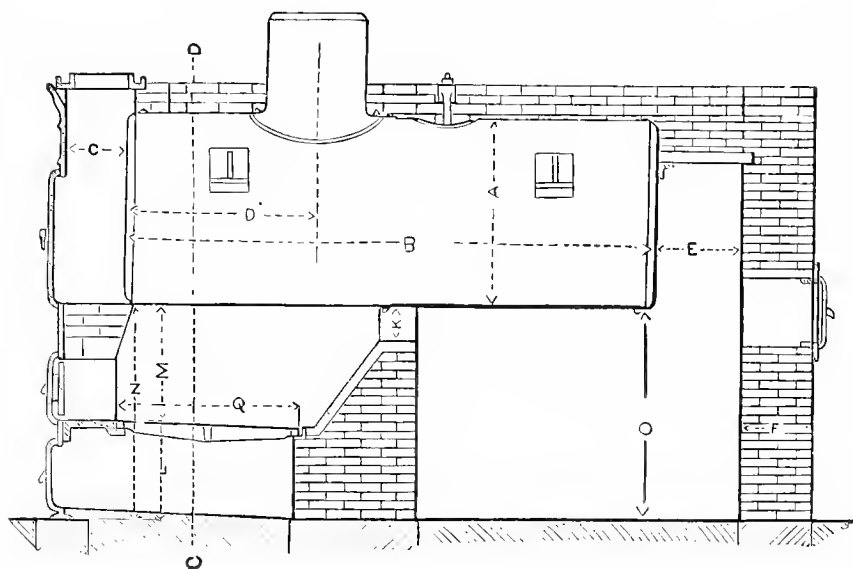
PRICES NAMED ON APPLICATION.

STATIONARY TUBULAR STEEL BOILERS

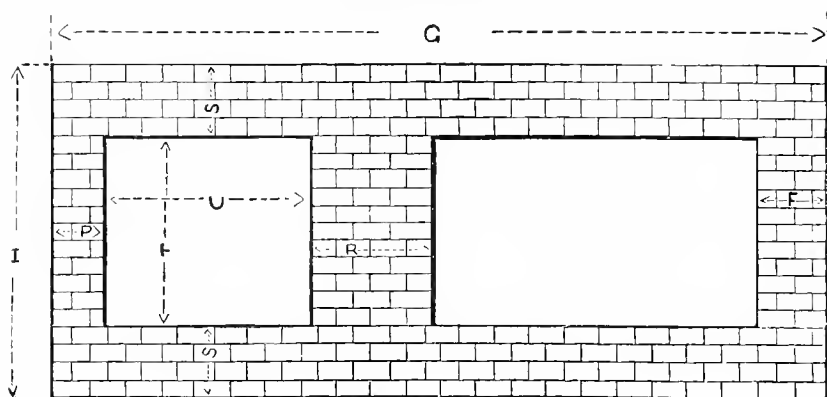
PLANS FOR SETTING

Full Arch Front

LONGITUDINAL SECTIONAL ELEVATION



GROUND PLAN



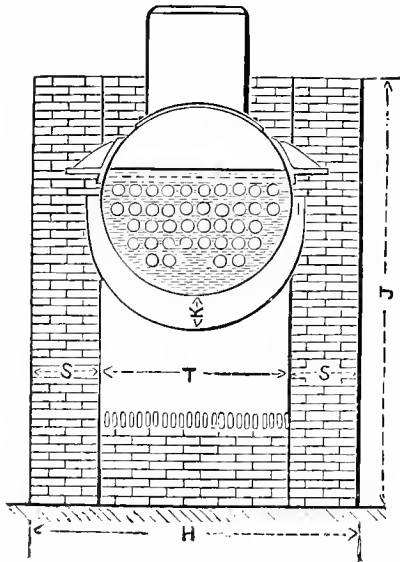
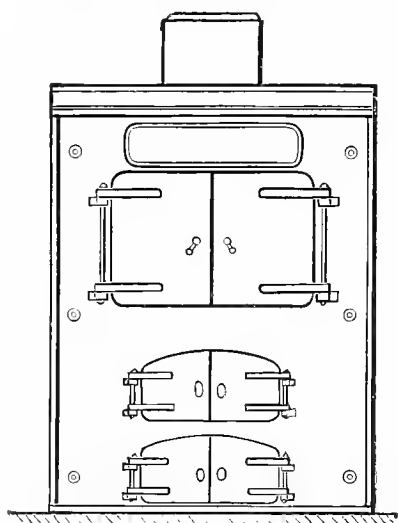
STATIONARY TUBULAR STEEL BOILERS

PLANS FOR SETTING

With Full Arch Front

FRONT ELEVATION

SECTION ON LINE "C D"



MEASUREMENTS FOR SETTING

Full Arch Fronts

FOR REFERENCE LETTERS, SEE PRECEDING DIAGRAMS.

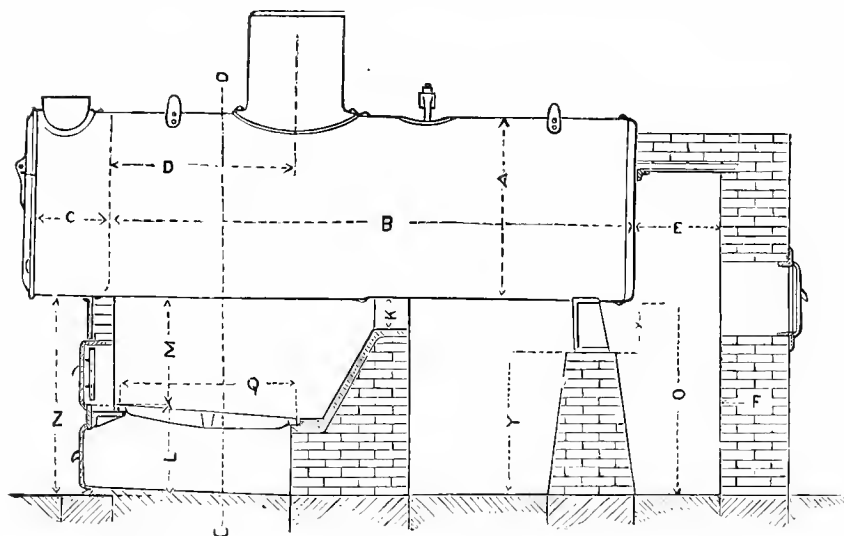
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	No. of Fire Brick.	No. of Com. Brick Above Floor Level.
Ins.	Ft.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.		
30	8	12	24	18	16	148	62	4	82	8	22	22	44	43	12	36	20	16	30	39	500	6200
36	7	12	16	20	16	138	68	4	88	8	22	22	44	43	12	36	20	16	36	39	500	6300
36	8	12	22	20	16	150	68	4	88	8	22	22	44	43	12	36	20	16	36	39	520	6700
36	10	12	30	20	16	174	68	4	88	8	22	22	44	43	12	42	20	16	36	45	580	7500
42	8	14	19	20	16	152	74	4	102	8	25	27	52	51	12	36	24	16	42	41	600	8000
42	10	14	30	20	16	176	74	4	102	8	25	27	52	51	12	42	24	16	42	47	640	8800
44	10	14	30	20	16	176	76	4	104	8	25	27	52	51	12	42	24	16	44	47	660	9800
44	12	14	39	20	16	200	76	4	104	8	25	27	52	51	12	48	24	16	44	53	725	10700
44	14	14	54	20	16	224	76	4	104	8	25	27	52	51	12	54	24	16	44	59	790	11600
48	12	16	36	20	16	202	80	4	108	8	25	27	52	51	12	48	28	16	48	53	910	11300
48	14	16	50	20	16	226	80	4	108	8	25	27	52	51	12	54	28	16	48	59	950	12300
48	16	16	48	20	16	250	80	4	108	8	25	27	52	50	12	54	28	16	48	59	990	13300
54	12	16	36	20	16	202	94	4	114	8	25	28	53	52	12	48	32	20	54	53	1100	14600
54	14	16	50	20	16	226	94	4	114	8	25	28	53	52	12	54	32	20	54	59	1160	16000
54	15	16	60	20	16	238	94	4	114	8	25	28	53	52	12	54	32	20	54	59	1220	16700
54	16	16	84	20	16	250	94	4	114	10	25	28	53	52	12	54	32	20	54	59	1280	17800
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60	16	18	84	20	16	254	100	4	121	10	25	28	53	51	16	54	32	20	60	57	1380	19200
66	14	20	48	20	20	236	114	4	131	12	29	28	57	56	16	54	32	24	66	57	1400	24000
66	15	20	60	20	20	248	114	4	131	12	29	28	57	55	16	54	32	24	66	57	1460	25000
66	16	20	84	20	20	260	114	4	131	12	29	28	57	55	16	54	32	24	66	57	1520	26000
66	18	20	84	20	20	284	114	4	131	12	29	28	57	55	16	60	32	24	66	63	1580	28000
72	14	20	48	20	20	236	120	4	134	12	26	28	54	53	16	54	32	24	72	57	1600	25000
72	15	20	60	20	20	248	120	4	134	12	26	28	54	52	16	54	32	24	72	57	1660	26500
72	16	20	84	20	20	260	120	4	134	12	26	28	54	52	16	54	32	24	72	57	1720	28000
72	18	20	84	20	20	284	120	4	134	12	26	28	54	52	16	60	32	24	72	63	1780	31000

STATIONARY TUBULAR STEEL BOILERS

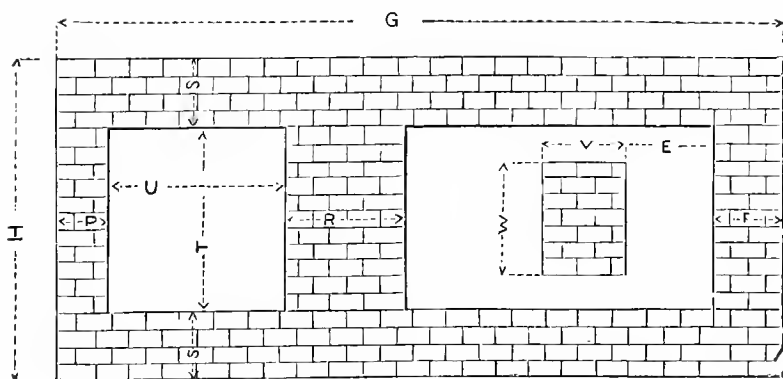
PLANS FOR SETTING

Half Arch Front

LONGITUDINAL SECTIONAL ELEVATION



GROUND PLAN



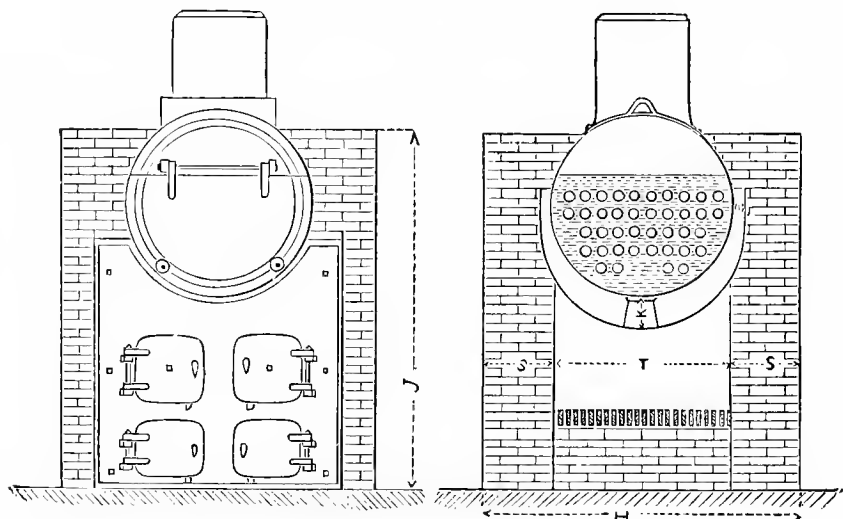
STATIONARY TUBULAR STEEL BOILERS

PLANS FOR SETTING

With Half Arch Front

FRONT ELEVATION

SECTION ON LINE "C D"



MEASUREMENTS FOR SETTING

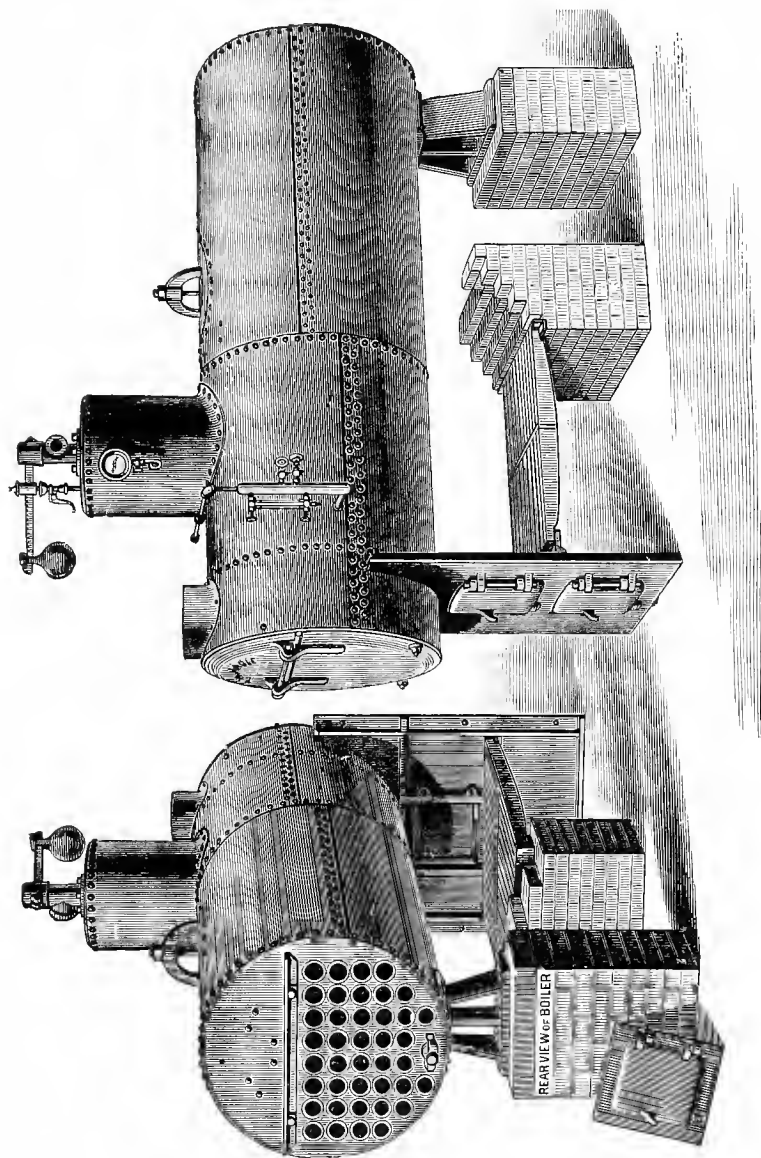
Half Arch Fronts

FOR REFERENCE LETTERS, SEE PRECEDING DIAGRAMS

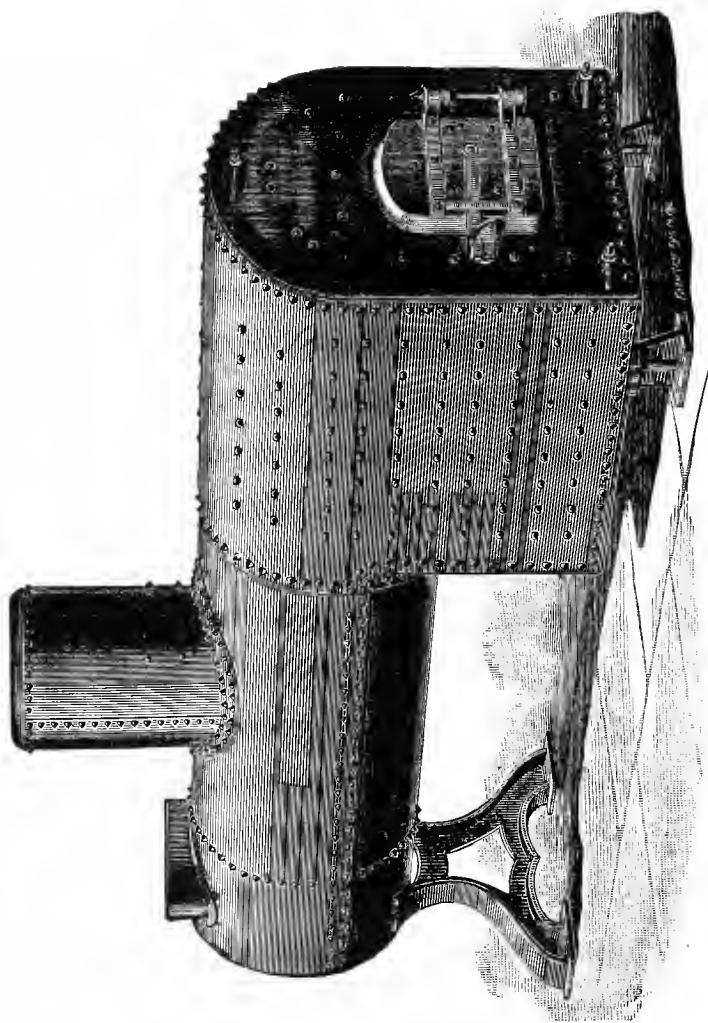
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	No. of Fire Brick.	No. of Corn Brick Above Floor Level.
Ins.	Fl.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.		
30	8	14	24	18	16	134	62	4	68	8	22	21	43	42	12	36	20	16	30	33	12	24	10	32	500	5900
36	7	16	16	20	16	124	68	4	75	8	21	22	44	43	12	36	20	16	30	33	12	24	10	33	500	5450
36	8	16	22	20	16	136	68	4	75	8	21	22	44	43	12	36	20	16	30	33	12	24	10	33	520	6000
36	10	16	30	26	16	160	68	4	75	8	21	22	44	43	12	42	20	16	36	39	12	24	10	33	550	6800
42	8	20	19	26	16	136	74	4	82	8	23	22	45	44	12	36	24	16	42	33	12	28	10	34	600	7150
42	10	20	30	26	16	160	74	4	82	8	23	22	45	44	12	42	24	16	42	39	12	28	10	34	640	7450
44	10	20	30	20	16	160	76	4	84	8	23	22	45	44	12	42	24	16	41	39	12	28	10	34	660	8000
44	12	22	30	20	16	184	76	4	84	8	23	22	45	44	12	48	24	16	44	45	12	28	10	34	720	8900
44	14	21	54	20	16	208	76	4	84	8	23	22	45	44	12	54	24	16	44	51	12	28	10	34	790	9800
48	12	23	36	20	16	184	80	4	88	8	25	24	49	48	12	48	26	16	48	45	20	32	10	38	910	10700
48	14	23	50	20	16	208	80	4	88	8	25	24	49	48	12	54	28	16	48	51	20	32	10	38	950	11200
48	16	23	64	20	16	232	80	4	88	8	25	24	49	48	12	54	28	16	48	51	20	32	10	38	990	11700
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54	15	23	60	20	16	222	86	4	100	8	25	26	51	50	16	54	32	16	54	45	20	36	10	40	1220	12800
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66	18	23	84	20	20	264	106	4	112	12	26	26	51	50	20	60	32	20	66	53	24	48	7	43	1580	22000
72	14	23	48	20	20	216	112	4	118	12	26	26	52	51	20	54	32	20	72	47	24	54	7	44	1600	20300
72	15	23	50	20	20	228	112	4	118	12	26	26	52	50	20	64	32	20	72	47	24	54	7	43	1660	21400
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72	18	23	84	20	20	264	112	4	118	12	26	26	52	50	20	60	32	20	72	53	24	54	7	43	1780	23600

STATIONARY TUBULAR STEEL BOILERS

With Half Arch Front



Portable or Locomotive Boilers



With Water Front and Open Bottom Fire Boxes, mounted on Skids. Built in 18 sizes, from 6 to 100 Horse Power. Specifications on the following page.

Specifications of Portable or Locomotive Boilers

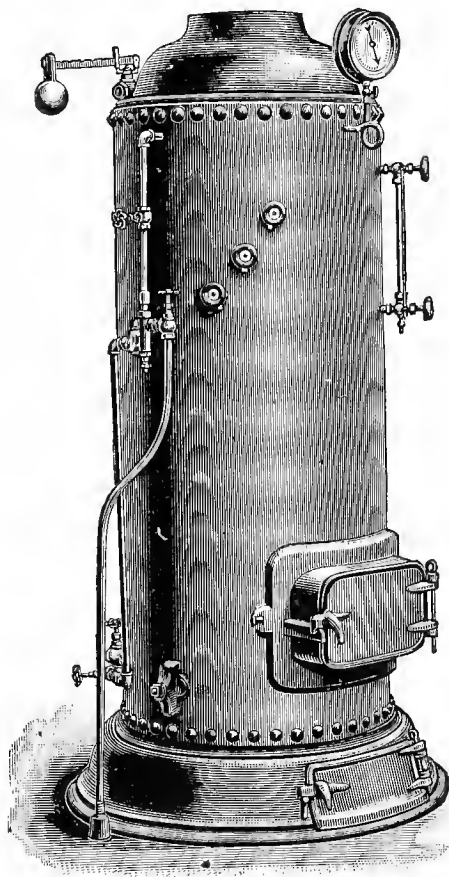
THOROUGHLY BRACED AND STAYED AND TESTED TO 150 POUNDS HYDROSTATIC PRESSURE.

Size Number.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Cipher	Cat	Cow	Cart	Cave	Cram	Cake	Can	Cabin	Cage	Camp	Child	Coat	Cob	Coin	Cream	Crow	Cue	Carl
Horse Power (Nonnial Rating)....	6	8	10	12	15	20	25	30	35	40	45	50	60	70	75	80	90	100
Diameter of Boiler in inches.....	26	28	30	32	32	34	36	40	44	44	48	48	52	52	56	56	60	60
Length of Fire-box " ".....	36	36	36	36	42	50	52	52	60	60	60	60	60	60	63	63	66	66
Width of Fire-box " ".....	22	23	24	26	26	28	30	34	38	38	42	42	42	46	50	50	54	54
Height of Fire-box " ".....	26	30	31	33	33	36	38	42	48	50	52	52	54	54	56	56	60	60
Number of 3-inch Tubes.....	14	18	20	22	24	30	34	38	46	46	48	48	48	64	76	76	85	85
Length of Tubes in inches.....	54	60	66	72	84	96	96	102	96	114	114	132	126	144	132	144	168	180
Thickness of Steel in Shell, inches..	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
Thickness of Steel in Fire-box, inches	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
Thickness of Steel in Heads " "	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Diameter of Dome " "	13	14	15	16	16	16	16	18	22	22	24	24	24	26	26	28	32	32
Height of Dome " "	14	15	16	16	16	16	16	20	22	24	24	24	24	26	26	26	32	32
Square Feet of Heating Surface.....	75	100	124	147	177	235	280	316	361	416	464	547	627	705	766	825	953	1138
Diameter of Smoke Stack in inches..	12	13	14	15	15	16	18	20	22	22	24	24	24	26	28	28	28	30
Length of Smoke Stack in feet.....	18	18	20	20	24	28	28	30	28	32	32	38	36	42	38	42	50	52
Estimated Weight with fixtures.....	2800	3300	3800	4300	4800	5400	6400	7800	9000	9600	10800	11500	12500	13000	15000	16000	19000	20000

With hand holes in suitable places; also one man hole in shell of Boilers of 45 Horse Power and larger. All Boilers are mounted on skids unless otherwise ordered, in which case a proportionate amount will be deducted from price if skids are not wanted. Longitudinal seams on all Boilers 30 Horse Power and smaller are single riveted. On all larger sizes they are double riveted. All domes on Boilers 35 Horse Power and larger are double riveted to the shell. The following list of fixtures and fittings are furnished with these Boilers: Grate Bars with bearers, Safety Valve, Steam Gauge and Siphon, Glass Water Gauge, Gauge Cocks, Whistle, Blow-off, Check and Stop Valve, Smoke Stack with galvanized iron guys four times the length of stack. Anything else ordered will be charged for extra.

UPRIGHT TUBULAR STEEL BOILERS

From 1½ to 16 Horse Power



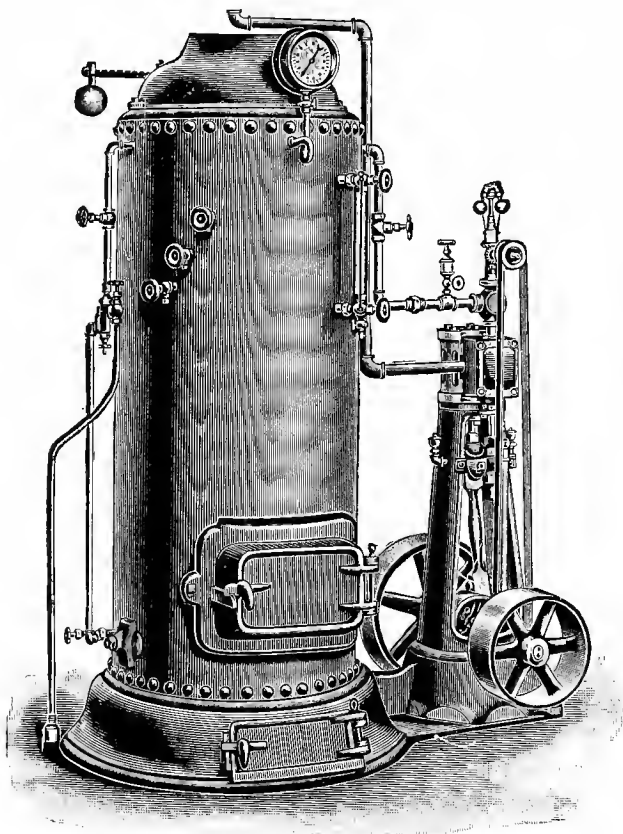
FOR SPECIFICATIONS SEE PAGE 25

WRITE FOR PRICES

OUR UPRIGHT TUBULAR STEEL BOILERS AND ENGINES ON COMBINED BASE

Boiler, $1\frac{1}{2}$ to 16 H. P.

Engine, 1 to 15 H. P.



We can furnish combined rigs as desired. See pages 25 and 29.
Independent bases furnished when not otherwise ordered.

WRITE US FOR PRICES.

Specifications of Plain Upright Steel Boilers

HORSE POWER	1½	2	3	4	5	6	8	10	12	14	16
Telegraphic Cipher.....	Red	Green	Yellow	Blue	Indigo	Violet	White	Black	Orange	Maroon	Purple
Diameter of boiler, in inches.....	20	20	20	24	24	26	30	30	36	36	36
Height above base, in inches.....	36	43	49	50	60	60	60	72	72	84	96
Diameter of furnace, in inches.....	16	16	16	21	21	22	25	25	30	30	30
Height of furnace, in inches.....	18	18	18	18	18	22	24	24	24	28	32
Thickness of steel in shell, in inches.....	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞
Thickness of steel in heads, in inches.....	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞
Thickness of steel in fire box, in inches.....	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞	⅞
Length of tubes, in inches.....	18	25	31	32	40	38	36	48	48	56	64
Number of 2 inch tubes.....	16	19	19	31	31	37	43	40	55	55	55
Weight of boiler without trimmings or fixtures.....	325	430	530	640	750	840	1010	1180	1520	1800	2280
Weight of boiler, complete.....	475	560	620	890	1060	1300	1550	1650	2350	2540	3000
Outside diameter of stack opening, in inches.....	8½	8½	8½	10	10	11	12½	12½	12½	12½	12½
Height from floor to top of hood, in inches.....	50	54	60	66	76	76	76	94	98	108	120

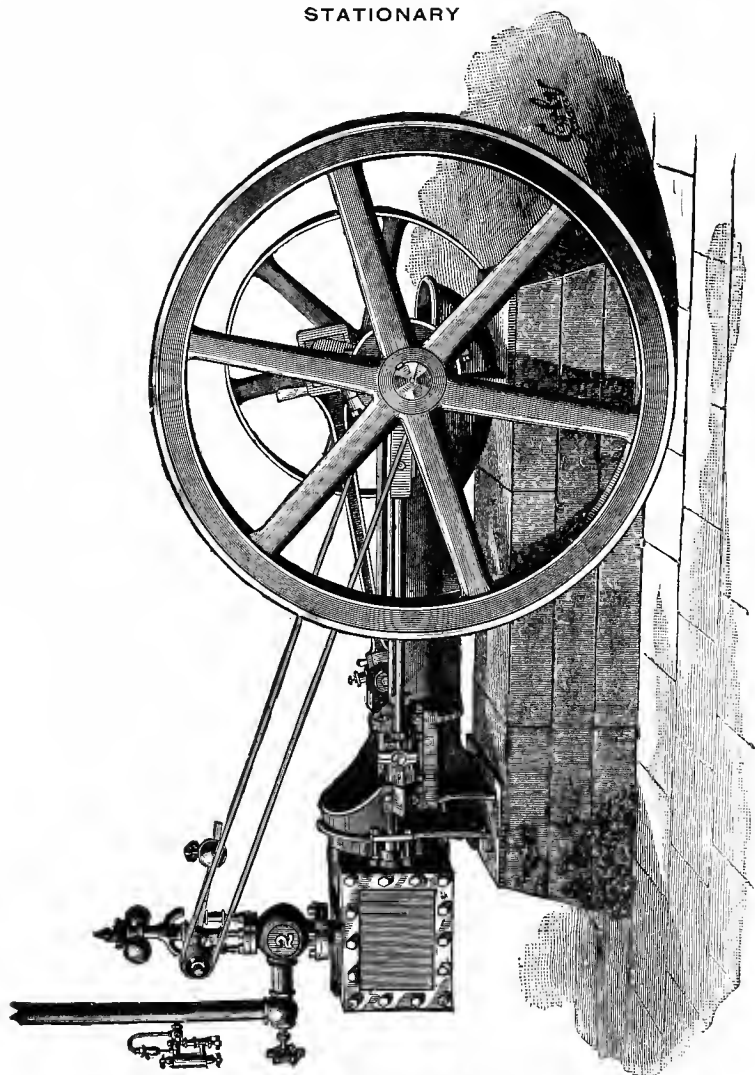
CAST FIXTURES.—Base, hood, fire door and grates.

TRIMMINGS.—Injector fitted, steam gauge, water gauge, gauge cocks, safety valve, blow-off, check and stop valves.

All Boilers above 26 inches in diameter have vertical seams double riveted. They are made of flange 60,000 lbs. Tensile Strength Steel and are tested to 160 lbs. hydraulic pressure.

THE FROST CENTER CRANK ENGINE

STATIONARY



The Frost is the most economical engine for creamery purposes on the market.

They have won a very favorable name wherever they have been introduced, and have only to be seen to have their merits appreciated. They are as carefully made as our Side Crank Engines, and have all their points of excellence in addition to some others that are secured to them from their peculiar construction and design. The main shaft is of steel, and all parts of the engine are made strictly to gauge, and are therefore interchangeable.

To responsible parties we offer to put this engine in on 30 days' trial.

SPECIFICATIONS OF FROST CENTER CRANK ENGINES

ESTIMATE.....	G	H	K	L
Telegraph Cipher.....	Graham	Hopeful	Kindly	Leather
Economic Range of Horse Power....	7 to 9	10 to 12	15 to 18	20 to 25
Usual revolutions per minute.....	160	175	140	160
Diameter of cylinder.....	6 inches	7 inches	8 inches	9 inches
Length of cylinder.....	9 inches	9 inches	13 inches	13 inches
Diameter and face of large pulley.....	36x6 inches	42x6 inches	48x10 inches	54x12 inches
Diameter and face of small pulley.....	20x8 inches	24x8 inches	30x8 inches	36x10 inches
Length of steel main shaft.....	3 ft. 6 in.	3 ft. 6 in.	4 ft. 6 in.	4 ft. 6 in.
Diameter of steel main shaft.....	2¾ inches	2¾ inches	4 inches	4 inches
Length of engine over all.....	5 ft. 3 in.	5 ft. 3 in.	8 feet	8 feet
Diameter of steam pipe.....	1½ inches	1½ inches	2 inches	2 inches
Diameter of exhaust pipe.....	2 inches	2 inches	2½ inches	2½ inches
Shipping weight complete.....	1,300	1,600	3,100	3,600

WRITE FOR ESTIMATES

The large and small pulleys can be used on either side of engine. There are included with above engines, Fly Wheel Pulley, Drive Pulley, Governor, Governor Belt, Throttle Valve, Oil Can, Oil Cups, Sight Feed Cylinder Lubricator, Wrench and Set of Foundation Rods and Anchors. When Engine and Boiler are both ordered from us we furnish pipe to connect same, provided they are not set farther apart than ten (10) feet between centers.

We furnish complete Working Drawings for Foundation Plans to each purchaser.

TESTIMONIALS

CREAMERY PACKAGE MFG. CO.

Chicago, Ill.

ELGIN, ILL.

Gentlemen:—Answering yours of the 5th inst., inquiring my opinion of the Frost Engines and Boilers, beg to say that I have now eight of these at work in my various creameries; some of them I have been using five years. After a careful test with other powers, I find them the most economical in point of steam of any that I have ever used, and more than this, they are economical in that very few repairs are required. In fact, my repair bills for the Frost rigs are next to nothing. I consider them the best on the market, and can heartily recommend them for creamery purposes.

Yours very truly,

D. E. WOOD.

Dows, Iowa.

Gentlemen:—The Frost Engine purchased from you last August has given eminent satisfaction in every particular. We feel that you have placed in our creamery an engine that can be recommended by us as being perfect in every respect.

FARMERS' CO-OP. CREAMERY CO.

CREAMERY PACKAGE MFG. CO.

Chicago, Ill.

PORTLAND, IND.

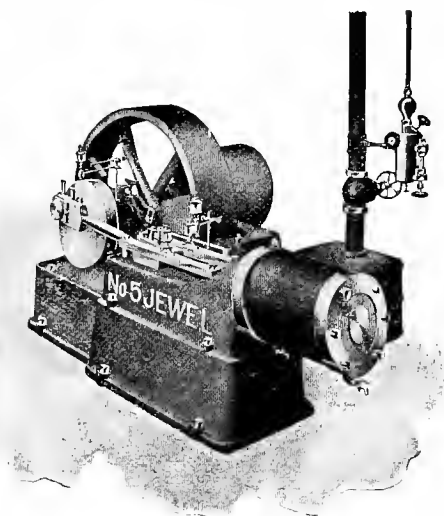
Gentlemen:—The Frost Engine, which we put in to take the place of the Erie City Engine, more than fulfills its expected service. It is a great pleasure, and it is our duty as well, to express to you our sincere appreciation of the service you have rendered us in giving us a rig which is in every respect better than you claimed. It is the most economical engine to operate we have ever seen.

Sincerely yours,

W. L. FERRIS.

THE "JEWEL" SIDE CRANK ENGINE

**SUPERIOR
FINISH**



**UTES
AUTOMATIC
GOVERNOR**

This engine has been used in creameries for a long time. It is considered to be one of the best engines for plants of this kind built. The present Jewel is better than ever before, as it is now fitted with the Rites Automatic Governor which keeps the engine under perfect control at all times.

DIMENSIONS AND POWERS OF THE "JEWEL" AUTOMATIC CUT-OFF ENGINES

Based on 80 lbs. Initial Pressure, Cut-Off at $\frac{1}{4}$ Stroke

ENGINE NUMBER	1	2	3	4	5	6
Telegraphic Cipher.....	Diamond	Ruby	Emerald	Pearl	Opal	Garnet
Horse Power Rating.....	6 to 8	8 to 10	10 to 12	15 to 18	20 to 25	30 to 35
Revolutions per Minute.....	AT 260 AT 380	AT 230 AT 320	AT 230 AT 300	AT 220 AT 280	AT 220 AT 260	AT 220 AT 260
Cylinder Bore.....	4 $\frac{1}{2}$ in.	5 in.	6 in.	7 $\frac{1}{2}$ in.	8 in.	9 $\frac{1}{4}$ in.
Stroke.....	6 in.	7 $\frac{1}{2}$ in.	7 $\frac{1}{2}$ in.	8 in.	10 in.	10 in.
Steam Pipe.....	1 $\frac{1}{2}$ in.	1 $\frac{1}{2}$ in.	1 $\frac{1}{2}$ in.	2 in.	2 in.	2 in.
Exhaust Pipe.....	1 $\frac{1}{2}$ in.	1 $\frac{1}{2}$ in.	2 in.	2 $\frac{1}{2}$ in.	2 $\frac{1}{2}$ in.	2 $\frac{1}{2}$ in.
Fly Wheel Diameter.....	20 in.	30 in.	30 in.	35 in.	42 in.	42 in.
Face.....	5 $\frac{1}{2}$ in.	6 $\frac{3}{4}$ in.	6 $\frac{3}{4}$ in.	7 $\frac{1}{2}$ in.	9 $\frac{3}{4}$ in.	9 $\frac{3}{4}$ in.
Weight.....	135 lbs.	200 lbs.	340 lbs.	435 lbs.	660 lbs.	660 lbs.
Belt Pulley Diameter.....	14 in.	16 in.	18 in.	20 in.	20 in.	24 in.
Face.....	6 $\frac{1}{2}$ in.	7 $\frac{1}{2}$ in.	8 $\frac{1}{2}$ in.	10 $\frac{1}{2}$ in.	12 in.	12 in.
Diameter of Shaft.....	1 $\frac{1}{2}$ in.	2 $\frac{1}{2}$ in.	2 $\frac{1}{2}$ in.	2 $\frac{3}{4}$ in.	3 $\frac{1}{2}$ in.	3 $\frac{1}{2}$ in.
Floor Space.....	52x36	64x38	64x38	69 $\frac{1}{2}$ x46 $\frac{1}{4}$	73x54	73x54
Weight complete.....	700 lbs.	1050 lbs.	1275 lbs.	1850 lbs.	2850 lbs.	2950 lbs.

TRIMMINGS.—We ship with each engine a complete set of glass oilers, one sight-feed lubricator, one throttle valve and two cylinder cocks.

SPEED.—We have found that the best results can be obtained between the limits of speed specified in the above list, although a greater or less number of revolutions may be used if desired.

The governor will be adjusted to the lower number of revolutions unless the speed desired is specified in the order.

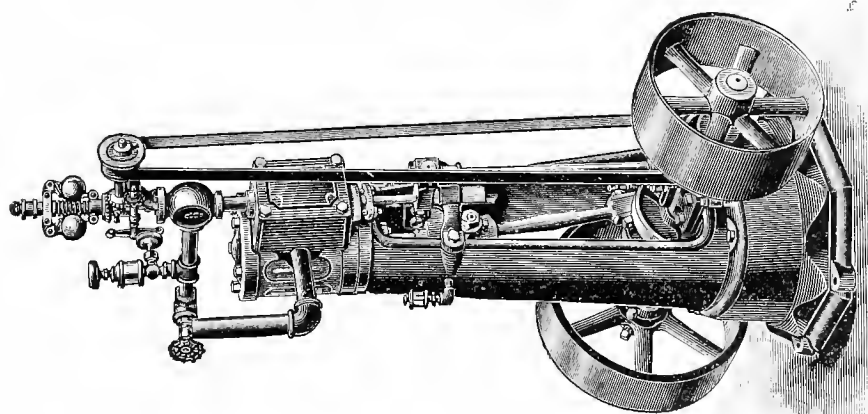
WRITE FOR ESTIMATES.

DIMENSIONS OF UPRIGHT ENGINES

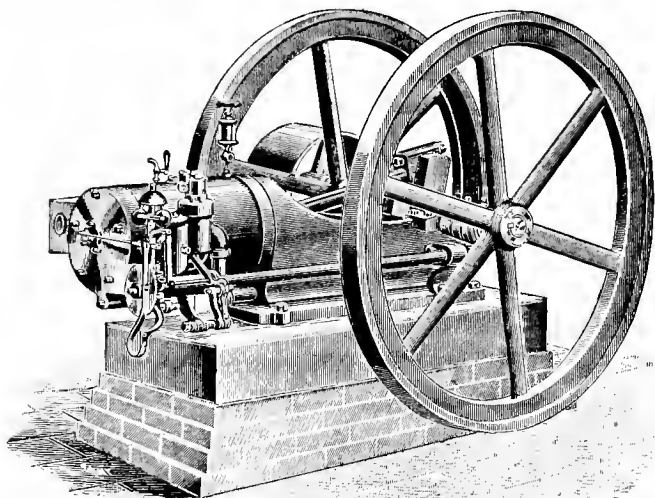
RATED HORSE POWER	1	2	4	6	8	10	12	15
Telegraphic Cipher.....	Celery	Carrot	Parsnip	Cabbage	Squash	Lettuce	Beans	Peas
Cylinder { Bore..... { Stroke.....	2½ 3	3 5	4 5	5 7½	6 7½	7½ 8	7½ 9	7½ 10
Steam Pipe.....	¾	½	¾	1	1¼	1½	1½	1½
Exhaust Pipe.....	½	¾	¾	1¼	1½	2	2	2
Revolutions per Minute.	400	350	300	250	200	200	180	180
Belt Pulley { Diameter..... { Face.....	6 3¼	10 4½	12 5	14 6½	14 6½	16 7½	18 8½	18 8½
Governor Pulley { Diam..... { Face.....	3 1½	4 1½	4½ 1½	5½ 1¾	6½ 1¾	9 2	9 2	9 2
Floor Space, inches.....	14x26	18x20	18x20	20x22	20x22	22x24	22x24	22x24
Height to top of Cylinder.	30 in.	3 ft. 6 in.	3 ft. 6 in.	4 ft. 8 in.	4 ft. 10 in.	5 ft. 2 in.	.....	.....
Weight.....	170	275	425	700	850	1250	1400	1500
Balance Wheel { Diam..... { Face..... { Weight.....	13 3½ 35	15 4 45	17 4½ 65	24 6 170	24 6 170	30 6½ 180	30 6½ 180	35 7½ 200
Diameter of Shaft.....	1½	1½	1½	1 15-16	1 15-16	2 3-8	2 3-8	2 3-8

TRIMMINGS.—The above prices include governor, governor pulley and belt, throttle valve, oil cups, cylinder lubricator, belt wheel, balance wheel and air cock.

WRITE FOR ESTIMATES.



THE "LAMBERT" GAS AND GASOLINE ENGINE



FOR CREAMERIES

The Lambert Gasoline Engine is especially recommended, as it takes but a few minutes at most to generate full power. There are no fires to start, steam to raise, engine to warm up, and no steam pipes to require attention. It is of great advantage to have everything in your creamery in perfect running order inside of five minutes. The Lambert Gasoline Engine will do this, and is a great convenience in the matter of economy, labor and time.

FOR SKIMMING STATIONS

we especially recommend it. It makes it possible to operate a skimming station with only one man and practically no loss of time or extra labor. When he arrives at the station it is a matter of but a few minutes from the time he arrives until he has the machinery in complete running order, and is at liberty to attend solely to receiving and skimming the milk, waiting upon his patrons, etc. This is a great saving and enables a butter maker to do better and closer work and attain the best possible results.

Again: There is great economy in **Fuel, Time, Labor and Material**, and the entire **Reliability** of the Lambert Gasoline Engine to run steadily, requiring little attention after having been properly oiled and started, makes it the very best, simplest and most convenient power obtainable for this work.

IMPORTANT POINTS

The Lambert Engine is a superior machine over any other engine of this type, and it is due to the following points:

1. **ITS MANUFACTURE** is conducted in a strictly modern shop, the engine being built after the most modern ideas of gasoline engine construction, the material and workmanship entering into the same being strictly first-class in every particular.

2. **ECONOMY.** This engine is so designed that it is enabled to do its work with the greatest economy in the way of oil, water and gasoline, returning the fullest amount of power for the smallest expenditure of fuel. This is brought about by the construction of the engine, and the details of the valve motion controlling the use of gasoline.

3. **DURABILITY.** All parts of this engine are made large for the work they have to do, avoiding entirely all sliding motion, reducing the friction to the smallest possible amount, and thereby making the engine durable, of long life, and, by making large bearings, reducing the heating, cutting and undue wear in the working parts to a minimum.

4. ACCESSIBILITY. All parts on this engine can be easily detached without the necessity of taking the entire engine to pieces, should any part become deranged or in any way meet with an accident necessitating its repair. Also, every part of the engine is exposed excepting the valves, and consequently every part is directly under the eye, and where it can be easily attended to.

5. SIMPLICITY. This engine is the par excellence of simplicity by reason of the very few parts that enter into its construction. The valves are of the "poppet" type, lifting from the seats and dropping back on the same, thus avoiding all the annoyance and difficulties that surround valves that are operated by sliding, rolling or twisting motion. All other parts of the engine are reduced to the smallest number, thereby making this engine the simplest possible.

6. STEADINESS OF RUNNING. This engine is controlled by a governor, the same in principle as the regular steam engine governor, and is very sensitive, enabling the engine to run perfectly steady, driving the separator at its maximum capacity with no perceptible variation. The wonderful sensitiveness of this engine is a matter of great surprise to all who have used it in creamery work, and this is due to the quick action of the governor and the reliability of the inlet and outlet valves.

7. SAFETY. This engine is the embodiment of safety in its work; being lighted with an electric spark, it affords no chance for undue explosion or igniting of the gas before the proper time, and in no way whatever can anyone meet with an accident on account of the faulty construction of the engine permitting the gasoline to come into contact with the spark at the wrong time, there being absolutely no chance for the waste of liquid gasoline or explosion of gas at the wrong period of the revolution of the engine.

SUMMARY

We therefore offer you an engine which possesses many merits not outlined here, and is in every way worthy of your confidence. Further, this engine has advantages over the steam engine in the following particulars:

First. You will need no engineer, thus saving this expense.

Second. You will need no coal, which, in the case of a skimming station in the country or at points remote from railroads, is a very expensive item.

Third. No ashes or other debris to be removed, therefore no unnecessary dust around the building.

Fourth. No additional insurance on account of this engine because of its absolute safety.

Fifth. You do away with the question of pumping water for boiler feed. This is an absolute necessity where steam rig is used.

Sixth. You remove entirely the uncertainty and risk due to careless handling of steam plants.

Seventh. It gives you an immediate power, while in the case of a steam rig an hour or more is necessary to raise steam.

Eighth. There is no loss of time on account of fuel or of low steam, of defective engines and boilers, bursted steam pipes, etc., but power is produced with absolutely no delay.

Ninth. There are no explosions, as is the case oftentimes with steam engines and boilers, heaters, pumps, steam jipes, etc.

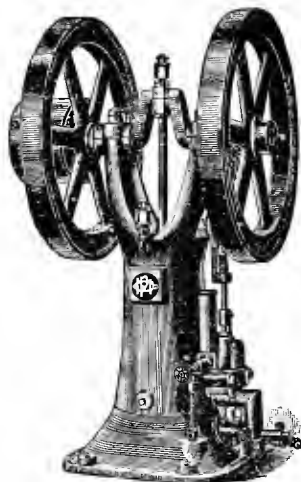
SPECIFICATIONS AND PRICES

Horse power	Speed per minute	Pulleys		Floor space over all		Weight	List Price
		Diam.	Face	Length	Width		
1	325	4 in.	2 in.	2 ft. 6 in.	1 ft. 6 in.	450 lbs.	\$ 175.00
2	300	6 "	3 "	3 " 10 "	1 " 10 "	1,000 "	250.00
3	300	6 "	4 "	4 " 0 "	2 " 0 "	1,200 "	300.00
4	275	6 "	4 "	4 " 2 "	2 " 2 "	1,350 "	400.00
5	260	6 "	5 "	5 " 0 "	3 " 0 "	1,500 "	450.00
6	250	10 "	5 "	5 " 6 "	3 " 4 "	2,000 "	500.00
8	240	12 "	5 "	5 " 10 "	3 " 6 "	2,700 "	600.00
10	220	12 "	6 "	6 " 9 "	4 " 4 "	3,600 "	700.00
12	210	12 "	7 "	7 " 6 "	4 " 6 "	4,500 "	800.00
15	210	12 "	7 "	7 " 8 "	4 " 6 "	5,200 "	950.00
16	200	12 "	8 "	8 " 0 "	4 " 8 "	6,400 "	1,000.00
18	190	12 "	8 "	8 " 0 "	4 " 8 "	6,800 "	1,100.00
20	190	12 "	8 "	8 " 4 "	4 " 8 "	7,500 "	1,200.00
25	180	12 "	8 "	8 " 8 "	5 " 0 "	8,300 "	1,450.00
30	160	16 "	10 "	10 " 9 "	5 " 9 "	9,500 "	1,700.00
35	160	16 "	11 "	11 " 0 "	6 " 0 "	10,500 "	1,950.00
40	160	16 "	11 "	11 " 3 "	6 " 3 "	12,000 "	2,200.00

WEBSTER 2½ ACTUAL HORSE POWER VERTICAL ENGINE

FOR GAS OR GASOLINE

**Over 600 Now in Successful Use. Up to Date, Easily Managed,
Perfect in Construction and Operation**



This cut represents our Vertical type of Gas or Gasoline Engine for small powers. The size of this Engine is 45 inches over all, from top of fly wheels to the base; total width over fly wheels is 24 inches; size of base, 18 x 18 inches; speed of Engine, 320 revolutions; size of pulley, 9 x 6 inches; weight of Engine, 700 pounds; total shipping weight, boxed, 800 pounds, One set of Foundation Bolts, which consists of four, 5/8 x 15 inches.

One Engine complete with Oil Cups.

One Buusen Burner and Tank.

One Exhaust Box and Pipe leading into it.

One 5-gallon Gasoline Tank, together with such small pipe as is necessary to connect up to a distance of 9 feet.

All pipes needed to connect Engine with Water Tank, a distance of not over 9 feet. One Driving Pulley, 9 x 6 inches. One 8-inch Monkey Wrench. One Alligator Wrench. One Squirt Oil Can.

Boxed and ready for delivery on cars.

When Engine is wanted for Gas instead of Gasoline we furnish a Gas Bag in place of Tank.

PRICE

Fully equipped for either Gas or Gasoline.....\$150.00

Less ten per cent. off for cash with order.

If larger power is wanted write for catalogue describing our **Webster Horizontal Engine**, which we can furnish from 4 to 30 horse power.

POINTERS ON GASOLINE ENGINES

Purchasers of powers are always interested in comparative costs. Here are two examples of comparison made in Chicago.

10 H. P.—averaging 5 H. P. load for ten hours.

10 H. P. STEAM ENGINE.

Coal.....	\$0.50
Water.....	.02
Oil and Waste.....	.06
Attendance.....	1.00

Total.....\$1 58

10 H. P. GASOLINE ENGINE.

Gasoline.....	\$0.56
Water.....	.60
Oil and Waste.....	.00
Attendance.....	.10

Total.....\$0.72

20 H. P.—full power ten hours.

20 H. P. STEAM.

Coal.....	\$2.00
Water.....	.10
Oil and Waste.....	.20
Attendance.....	2.00

Total.....\$4.30

20 H. P. GASOLINE.

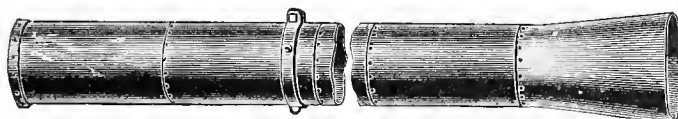
Gasoline.....	\$1.60
Water.....	.00
Oil and Waste.....	.20
Attendance.....	.10

Total.....\$1.90

Basis for above, coal @ \$2.30 per ton; gasoline @ 8 cents per gallon.

When it comes to a question of economy the above results speak for themselves.

Smoke Stacks and Guy Wire



Diameter in inches	No. 18 Steel per foot	No. 16 Steel, per foot	No. 14 Steel, per foot	No. 12 Steel, per foot	No. 10 Steel, per foot	No. 8 Steel, per foot
8	\$0.52	\$0.62	\$0.78	\$0.96	....	....
10	.60	.70	.88	1.06	....	....
12	.70	.80	.98	1.20	....	....
13	.76	.82	1.02	1.24	....	....
14	.80	.84	1.04	1.28	\$1.50	\$1.76
15	.86	.90	1.10	1.36	1.64	1.94
16	.90	.96	1.16	1.44	1.76	2.12
18	...	1.06	1.36	1.66	1.90	2.34
20	..	1.18	1.46	1.80	2.06	2.52
22	...	1.28	1.58	1.96	2.20	2.70
24	...	1.36	1.66	2.00	2.26	2.76

For Elbow in stack, add cost of 8 feet of stack.

“ Damper “ “ 3 “

Guy Wire for 10 to 14 in. stacks, 1½ cts. per foot.

“ “ 14 “ 20 “ 1¼ “ “

“ “ 20 “ 26 “ 2 “ “

STACK PLATES

For 30 inch Boiler.....	each, \$4.00
“ 36 “ “	“ 5.00
“ 42 “ “	“ 6.00
“ 44 “ “	“ 6.00
“ 48 “ “	“ 7.00
“ 54 “ “	“ 7.00
“ 60 “ “	“ 7.00

FIRE BRICK

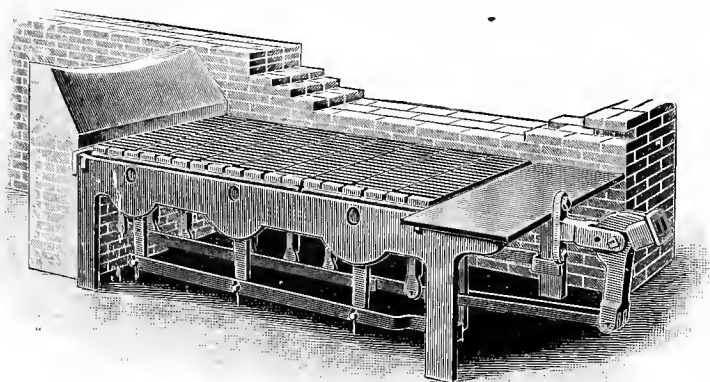


Best quality, small lots, per 1000.....	\$30.00
“ “ 500 to 1000, “	28.00

FIRE CLAY

Best quality, per barrel.....	\$2.25
“ “ ½ barrel.....	1.50
“ “ bushel.....	1.25

THE FROST IMPROVED SHAKING AND DUMPING GRATE



We present herewith an improved Shaking and Dumping Grate which has been tried and proved unrivalled for economy of fuel, durability of parts and ease of operation. It has 60 per cent of air space for the combustion of fuel, and has been carefully designed to avoid the weak points that have been found in many other grates of this class.

The part exposed to the fire, called "clips" or "fingers," weigh less than 200 lbs. each, and are the only pieces that can be burned out. All parts of the frame and mechanism are so far below the fire as not to be injured by the heat. The clips are mounted on a carrier so that any one of them can be removed when burned.

The grate is constructed so as to shake in sections six inches long by the width of the grate. Three of these sections are grouped together to form a dumping section eighteen inches long, and enable the entire contents of the grate to be dumped through a wide opening when necessary to discharge it. The six inch sections can be made to rise and fall several inches vertically for the purpose of breaking clinkers or cutting the fire. When locked in position for use as shown in the cut, it gives a perfectly flat surface with no curved or rounded parts to project upward into the fire to be burned out; neither are there any long interlocking fingers as in some forms of grates, which soon become warped by the heat and lock the grate fast so that it cannot be moved and is no better than a common grate bar. This grate will not become distorted by use so as to "set," as many do. Its parts that wear out can be easily and cheaply renewed.

When ordering state the kind of fuel to be used.

Price for boilers from 8 to 100 H. P. per square foot.....\$4.50

For special price, please give size of boiler, also width and length of your fire box, and we will be pleased to submit you complete estimate.

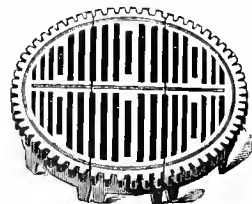
GRATE BARS



The "Common"



The Kelly "V"



The "Round"

We carry in stock grate bars for Horizontal Boilers, 30, 36 and 37 inches long. Each "Common" grate is 3 inches wide and has two bars to each section. Our "V" grates are 6 inches wide. Also, round grates for Vertical or Upright Boilers. Our bars and round grates are made from the best gray iron, and cannot be compared with those made of scrap that are sold at lower prices. All sizes furnished to order promptly.

PRICES

Grate Bars for Horizontal Boilers, either "V" or "Common," per lb. 3 3/4 cts.

"Round" Grates complete for Vertical Boilers..... " 4 cts.

We recommend the "V" style.

“PHOSPHO”



A Chemical Water Purifier for the Prevention or Removal of Scale in Boilers.

Guaranteed, absolutely, to produce no injurious effect on **Milk** or other food product with which the steam is brought in direct contact.

“**Phospho**” is sold in concentrated form, not being diluted in water, and owing to small quantity required will be found efficient and inexpensive.

EVIL EFFECTS OF SCALE IN BOILERS

Its conducting power, as compared to iron, is as 1 to 35.5. A scale $\frac{1}{16}$ inch thick will require an expenditure of 17 per cent. more fuel; when it is $\frac{1}{8}$ inch thick, 60 per cent.; $\frac{1}{2}$ inch thick, 150 per cent.

To raise steam to 90 lbs. pressure, the water must be heated to about 320 degrees Fahr. In a clean boiler this can be done by heating the external surface of the boiler to about 325 degrees Fahr. If $\frac{1}{2}$ inch of scale intervenes its non-conducting power is so great that the fire surface needs to be heated to about 700 degrees Fahr., almost red heat. The higher the temperature at which iron is kept the more rapidly it oxidizes. At any heat above 600 degrees it rapidly becomes granular and brittle. If this is borne in mind it will account for the failure of many boilers.

DIRECTIONS FOR USE.

For 10 H.P. boiler,	Ten hours use.....	4 ounces per day.
	Five “ “	2 “ “ “
For 20 “ “	Ten “ “	6 “ “ “
	Five “ “	3 “ “ “
For 25 “ “	Ten “ “	8 “ “ “
	Five “ “	4 “ “ “
For 35 “ “	Ten “ “	12 “ “ “
	Five “ “	6 “ “ “
For 50 “ “	Ten “ “	16 “ “ “
	Five “ “	8 “ “ “
For 100 “ “	Ten “ “	20 “ “ “
	Five “ “	10 “ “ “

Dissolve Phospho in warm water and inject the solution daily into boiler, or continuously with feed water, if convenient. Open and wash out boiler frequently.

When boiler is heavily scaled order “**Extra Strength Phospho**” and use till boiler is clean. Price same as for regular strength.

This preparation is in successful use in a large number of the best creameries in the United States.

5 to 10 H. P. boiler,	25 lb. package.....	Price, \$ 3 75
15 to 25 “ “	50 lb. “	6 00
	10 lb. “	2 00

MECHANICAL REFRIGERATION FOR CREAMERIES.

MECHANICAL REFRIGERATION has been recently adopted by a number of our best equipped creameries, and its success in these instances gives promise of its general introduction in the near future. Following are some of the advantages of Mechanical Refrigeration as shown by practical experience:

IT GIVES A DRY STORAGE ROOM. All creamerymen readily understand that, when ice is used, this is a very difficult thing to secure, as the melting of the ice is a process which naturally develops moisture and renders the room damp, and one that does not readily keep its contents in proper condition. On the other hand, the frosted pipes of the Refrigerating Machine condense the moisture of the room upon them, thus drying the air and protecting the contents of the room from moulding.

IT SECURES ECONOMY OF SPACE. A large additional building is always required for the storage of the ice required for the season's use. In addition to this, a considerable part of the refrigerated room must also be utilized for the ice necessary for its refrigeration. Where mechanical refrigeration is used, the ice house is entirely done away with. The machine itself requires but a small space, and can generally be placed in the engine room or some part of the work room of the creamery. The piping required to transmit the cold to the refrigerated room occupies but a very limited space, and does not, therefore, necessitate any enlargement of the room for its introduction.

IT IS CLEAN. The handling and packing of the ice in the refrigerated room is ordinarily a process which brings much dirt into the Refrigerator, and frequently into the manufacturing room of the creamery. The Refrigerating Machine avoids everything of this nature, there being no ice to handle, and nothing in connection with it which brings dust or dirt into any part of the creamery.

BY THE AID OF SUITABLE appliances, the Refrigerating Machine can be utilized for cooling the milk and cream to any temperature desired, and this can be done as fast as desired. The value of this for creamery purposes will be readily understood by every creameryman. Where the operator is able to reduce the temperature of the cream to 40 or 50 degrees as soon as it leaves the separator, he has nothing to fear, even in the hottest weather, from any deterioration. It is also desirable in many cases to cool the skim milk as it leaves the separator, in order that it may be returned to the patrons in the best condition for feeding the calves and other stock. This is a very important advantage which cannot be had where ice is depended upon for Refrigerating purposes.

IT GIVES ABSOLUTE CONTROL of the temperatures of the rooms to be cooled. With Mechanical Refrigeration the refrigerated

room can be carried to any desired temperature, and can be held there at will. This is a result which cannot be obtained with ordinary Ice Refrigeration, and is very important.

Butter to be shipped in hot weather will arrive at its destination in much better condition if prior to shipment it can be thoroughly chilled to a temperature of 30 or 32 degrees. When delivered at this temperature to the transportation companies, it will stand a considerable journey, even in the hottest weather, without suffering from heat.

WHERE MECHANICAL REFRIGERATION is used, the churn room can be easily piped and its temperature controlled. This is a result which cannot be secured by the means of Ice Refrigeration, and has not been attempted. Where, however, the Ice Machines have been used, this is being done, and its advantages will be readily appreciated by every butter maker. Many of the difficulties of butter making in the hottest summer weather can be absolutely avoided where the churn and work room is held at a temperature of 60 degrees during the working hours.

THE SAVING OF LABOR BY THE USE OF Mechanical Refrigeration is also an important item, in that there is no ice to be handled daily in the filling of an ice box. There is also economy in its use, in view of the fact that it is ordinarily operated only during the hours while the machinery of the creamery is run for other purposes.

REFRIGERATOR EXTRAS

AMMONIA

Sold in 50 and 100-pound drums.....per lb. \$.....

For price see Monthly Price Current.

Drums (returnable).....\$25 00

Drums returned will be credited at list price less freight and cartage charges.

MINERAL WOOL

For insulating cold storage and refrigerating rooms, deadening sound, and protection against heat and cold, frost, spreading of fire, rats, mice and insects.

In bags, averaging 40 pounds each, equalling 4 cubic feet, or 200 cubic feet per ton.

Small lots, per 100 pounds.....\$ 1 25

Per ton.....20 00

Bags, extra (returnable) each.....10

GROUND CORK

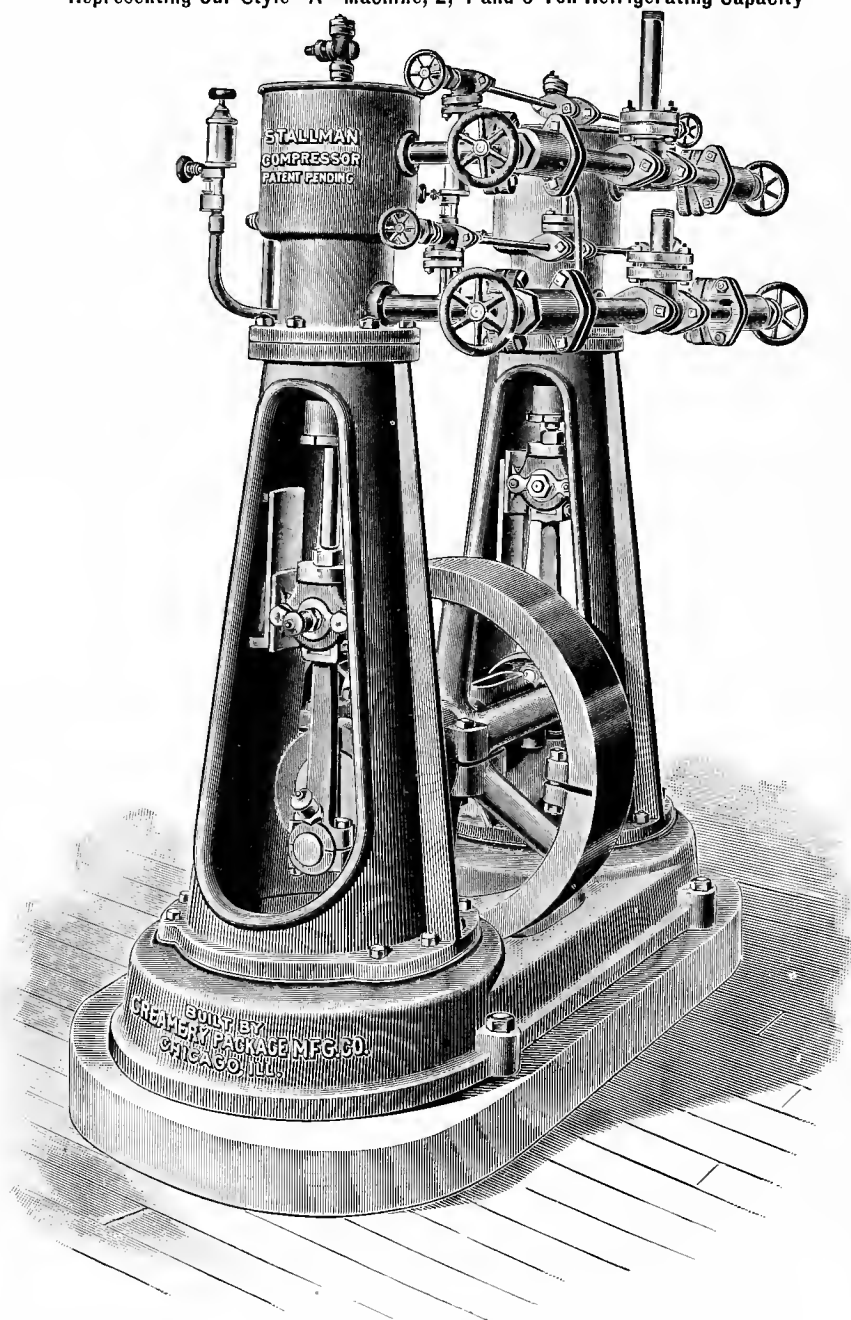
Ground or Granulated Cork is necessary to make insulation complete. We handle the very best.

Price, F. O. B. Factory.....per pound, \$0 05

Ground cork, tightly packed, as it should be for best results in insulation, weighs about 5 lbs. per cubic ft. It can be shipped loose in bags, holding about 80 to 80 lbs. each, in which shape it takes first-class freight rate, or it can be baled under pressure, and in that shape takes a much lower rate. Extra charge for baling in compressed packages, 25 cts. per 100 lbs. When shipped loose, bags are charged at 40 cts. each, and are returnable at same price, less freight charges. No charge for baling material on compressed packages.

STALLMAN'S TWO-CYLINDER SINGLE-ACTING COMPRESSOR

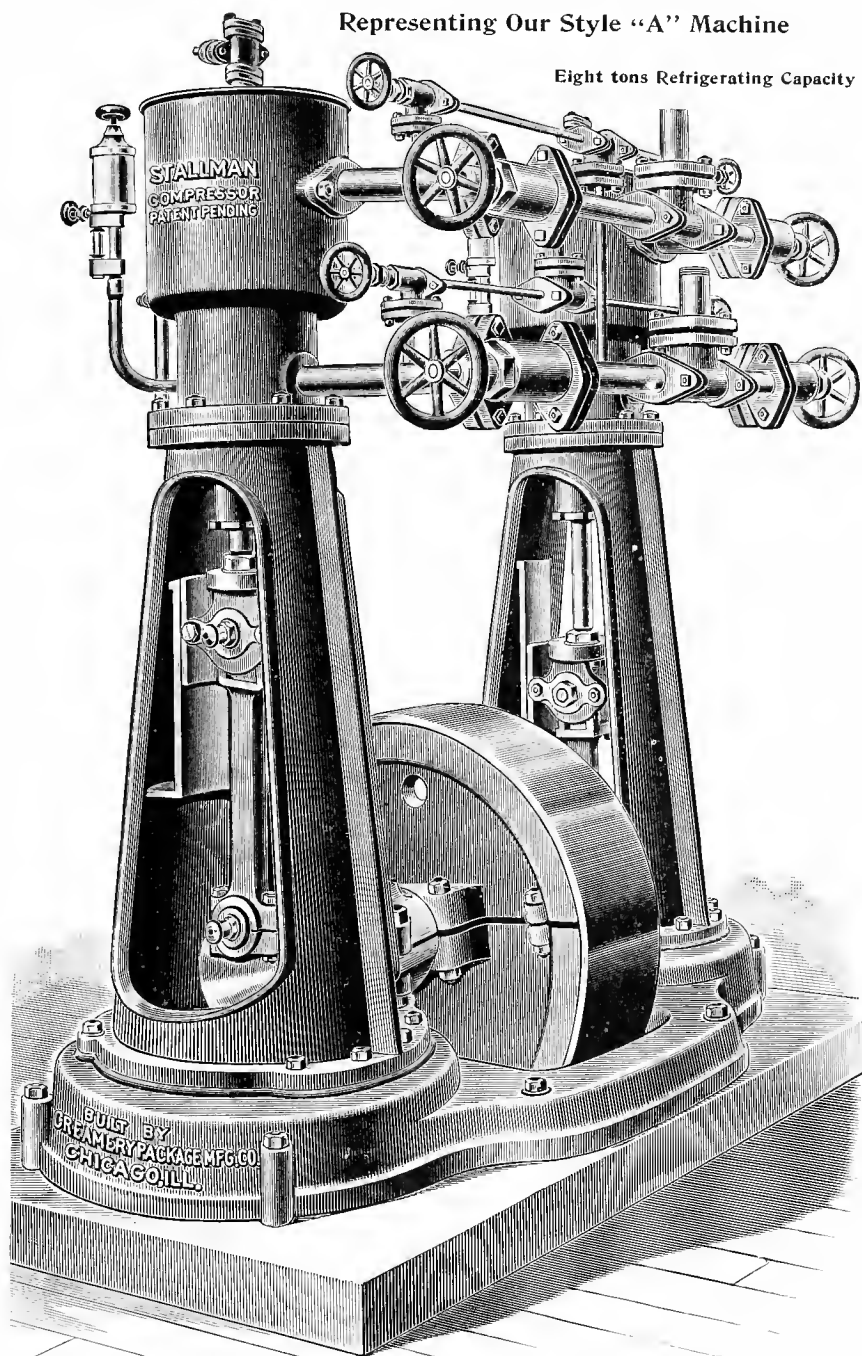
Representing Our Style "A" Machine, 2, 4 and 6-Ton Refrigerating Capacity



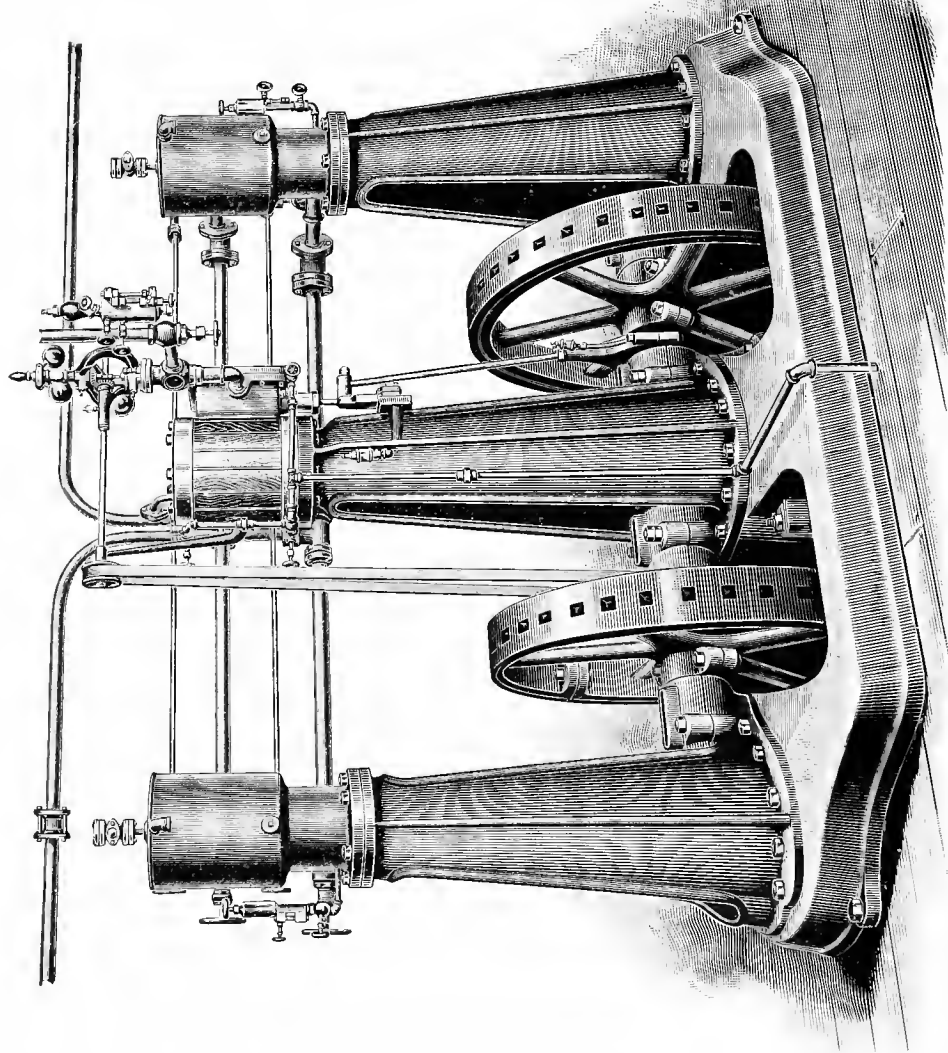
STALLMAN'S TWO-CYLINDER SINGLE-ACTING COMPRESSOR

Representing Our Style "A" Machine

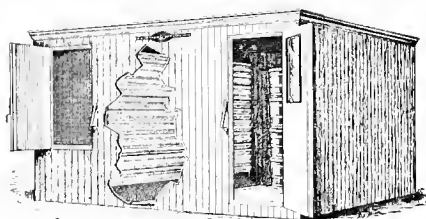
Eight tons Refrigerating Capacity



STALLMAN'S TWO-CYLINDER DIRECT CONNECTED SINGLE-ACTING COMPRESSOR



Bohn — Patent



AIR SYPHON REFRIGERATORS.

THE MOST IMPORTANT INVENTION
FOR CREAMERY MEN IN
RECENT YEARS.

Sold Exclusively by us to the Creamery Trade.

Our AIR SYPHON REFRIGERATORS are built to order to fit any desired space in any creamery, are shipped knocked down so that they can be set up quickly by any carpenter.

We claim superiority, challenge comparison, and guarantee the following points:

- 1st. Low and Uniform Temperature from 35 to 42 Degrees.
- 2nd. Pure and Dry Atmosphere.
- 3d. Ease in Keeping Clean.
- 4th. Free Circulation and Absence of Odors.
- 5th. Freedom from Moisture.
- 6th. Economy in Consumption of Ice.
- 7th. Perfect Drainage.
- 8th. Absolute Prevention of Mold.



Moldy Butter Tubs. Have you been troubled with mold on butter tubs? If so, you probably have wrongly attributed it to the tubs, the linings, or the soaking. In ninety-nine cases out of a hundred, it is caused by an imperfect cooling room. This statement is not guess work but it is made after careful investigation. We have spent much time and effort in running down this mold question. You will find that it will grow worse every year as your cooling room becomes older. The ordinary creamery cooling room, close, stuffy, and damp, gives just the proper conditions for germinating mold.

Put in one of our Air Syphon Refrigerators and you will never have the slightest appearance of mold.

CREAMERY REFRIGERATION.

Creamerymen generally are noted for progressive ideas, and constant study and thought, in endeavoring to produce by the best possible methods the highest obtainable results. They seek and demand the best machinery, and after study and comparison adopt the methods that seem to insure the best grades of butter. Every detail and process is carefully watched, from the character and quality of the milk received, clear through the processes of separation, ripening, churning and working, until the butter is packed in the tub. But the subject of refrigeration, or cooling of butter after it is packed in the tub, has had less attention than any other department of creamery work. Fortunately, creamerymen are now turning their attention to the cooling rooms as an important feature.

The former idea that any old ice box is good enough to hold butter in it, is becoming obsolete.

As a matter of fact, in the equipment of a modern creamery plant the refrigerator is only second to the separator. Many a good churning of butter has been spoiled in a defective cooling room. The average creamery cooling room is totally unfit for the purpose for which it is intended, being damp, close, and musty. Cold temperature is not the only essential; circulation and dry air are more important than cold.

We can give you all three features in the Bohn Patent Air Siphon Refrigerator. Can give you lower temperature, dryer conditions and more thorough circulation than in any other known system of ice refrigeration, with absolute and immediate removal of all odors.

WHAT WE CLAIM.

In our new syphon system of refrigeration we claim, and guarantee to produce a low and uniform temperature ranging from 35 to 42 degrees, an absolutely pure and dry atmosphere, perfect circulation, an absence of odors, positive freedom from moisture, and hence absolute prevention of formation of mold; and economy in consumption of ice.

TEMPERATURE.

An examination of the sectional illustration will show the principle on which this system of refrigeration depends. The cold in the ice bunker chills or cools the syphons separating the ice bunker from the refrigerating or storing room. As cold air naturally falls while warm air rises, this creates a constant current through the syphons. The cold air falls through the grate at the bottom of the ice bunker, is conveyed thence into the refrigerating or storage room where the vacuum created causes it to again rise and repeat the process. There is, therefore, a continual current of air passing from the ice bunker into the cooling room and again from the cooling room through the syphons into the ice bunker. Therefore, every part of the cooling room becomes of the same temperature as the air in the ice bunker.

PURE AND DRY ATMOSPHERE.

The circulation of air outlined not only maintains a low and uniform temperature, but the air as it passes through the syphons and comes in contact with the ice, is immediately relieved of all odors and moisture which are condensed on the ice and pass off through the waste pipe with the water from the melted ice, so that it is an impossibility for any moisture to remain in the storage room. In fact, a wet cloth hung in the storage room will become dry quicker than it would if hung out doors under ordinary conditions. This is the secret of one of the most important results obtained from the use of this system of refrigeration, which is—

PREVENTION OF MOLD.

The ordinary creamery cooling room in use today provides just the right conditions for the formation and propagation of mold, being damp and close. The ordinary creamery cooling room is nothing but a make-shift and is, if the facts were known, more of a damage than a help to any creamery. Our Air Syphon Refrigerator, as any creameryman will realize after understanding the principle on which it works, is an absolute preventative of the formation of mold. It is at all times dry, sweet and clean. Mold on butter tubs is caused by their being stored in a damp, close cooling room. Some of the larger creameries in the country obviate the difficulty by putting in mechanical freezing or cold storage plants using the ammonia system. Such creameries never have any trouble from mould, but as these ammonia or mechanical refrigerators cost from \$1,000.00 to \$3,000.00, they are pretty expensive for the ordinary creamery. The invention of this air syphon system now places refrigeration within the means of every creamery.

ICE CONSUMPTION.

Refrigerator builders agree that insulation and dry air accomplish more in ice saving than all other features combined. In this feature our system surpasses all others. In the construction of these refrigerators we spare no expense to compass the highest possible degree of insulation, insuring a degree of economy in ice consumption that is impossible under any other system.

SPECIFICATIONS AND QUALITY.

While the results we produce with our refrigerators are largely due to the patent air syphon system, an important feature is the manner of construction and insulation, which has a large bearing on the ice consumption. Our refrigerators are built with the very best material throughout. The materials used in insulating are the best known for that purpose. Our refrigerators are constructed of Georgia Pine outside. The inside lining is of Oak or Spruce. Between these inside and outside shells we have one thickness of the best heavy felt, three thicknesses of the heaviest and most expensive waterproof insulating paper and 2 inches of packing. The ice chamber is lined throughout with galvanized iron.

While the above construction adds to the first cost, it makes a refrigerator which absolutely prevents the passage of heat or cold through the walls, thereby insuring the lowest consumption of ice and producing the highest possible results.

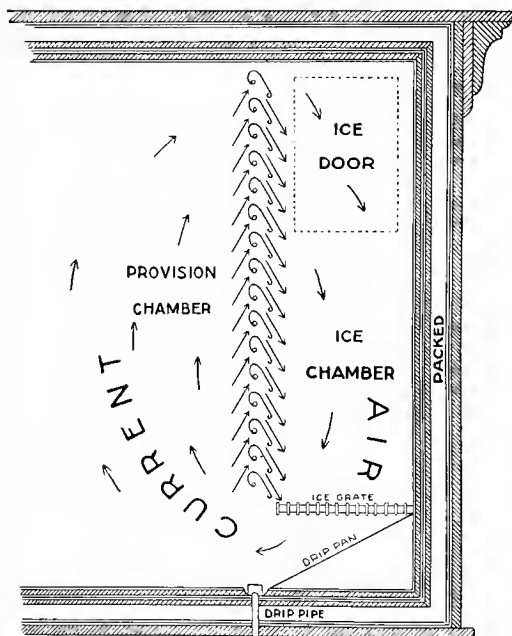
HOW TO ORDER.

We manufacture these refrigerators to order and require from two to three weeks to deliver after receipt of order. We make them any size or shape desired. If you have any particular place in the creamery in which it should fit, give us the dimensions of such space and indicate where the doors opening into the cooling room and also opening into the ice chamber should be located to suit your best convenience. The door into the ice chamber can be placed in the end or on the back side, so that the ice could be supplied from the outside of the creamery, if desired. We would recommend a height of seven feet as being the most convenient and practical, although we can make them any height desired. As a guide we give below a few standard dimensions, showing the number of 60-lb. tubs of butter the different sizes given will hold:

No.	Wide.	Long.	High.	No. 60-lb. tubs will hold.
1...	6ft.	8ft.	7ft.	48
2...	6 "	10 "	7 "	64
3...	6 "	12 "	7 "	80
4...	8 "	10 "	7 "	80
5...	8 "	12 "	7 "	100
6...	10 "	10 "	7 "	112
7...	10 "	12 "	7 "	140
8...	10 "	14 "	7 "	163
9...	10 "	16 "	7 "	196

If you will indicate to us which of the above sizes will answer your purpose, or give us the dimensions of any special size to fit any special place wanted, we will be pleased to quote you prices on the same. Many creameries may find it desirable to place these refrigerators in the same space formerly occupied by the old ice boxes.

Our refrigerators are all made in sections and so marked that any ordinary carpenter can set them up quickly.



SECTIONAL VIEW.

We give above a sectional cut showing the circulation of air currents in our Air Syphon Refrigerator. The perpendicular row of galvanized air syphons are chilled by contact with the ice, causing the air to drop (as cold air always falls). This creates a vacuum in the syphons causing the air to rush into them from the cooling room. The cold air falls through the grate at the bottom of the ice chamber, enters the cooling room, rises, and returns again into the ice chamber forming a continuous current which is so strong that a match held at the bottom where the air enters the cooling room will be blown out. This continuous current keeps all parts of the cooling room of an even temperature and quickly carries all moisture and odor into the ice chamber where it is condensed on the ice and passes away through the drip pipe, so that the refrigerator is always perfectly dry and free from all odor. This process will be seen at a glance to be immensely superior to any other system of cold storage. Any creamery putting in one of these refrigerators can be thereafter absolutely certain that the butter placed in them will retain the same good qualities that it possesses when it comes from the churn, while the packages will be dry, clean and free from any possibility of formation of mold.—Write us for any further information wanted.

"P & B" Paint, Paper and Roofing

PAINT

What P & B Paint is used for



Protecting Iron and Wood from the action of Acids, Alkalies, Moisture, Gases, etc.

Coating and Preserving all kinds of Iron Work, such as Coils, Brine-Pipes, Tanks, Condensers, etc.

For coating Brick or Wooden Walls exposed to moisture, to prevent them from Sweating; and as an aid to insulation.

For preserving Iron or Wood Work submerged or underground.

It dries quickly, is very penetrating and when dry is absolutely tasteless and odorless.

PRICE LIST OF P & B PAINTS

No. 1—Light Body

AN ALMOST IMMEDIATE DRYER.

In bbls. of about 50 gallons.....	per gal., \$1.20
" ½ bbls. of about 30 gallons.....	" 1.25
" 5 or 10 gallon packages.....	" 1.30
" 1 gallon cans (6 in a case).....	" 1.40

No. 2—Standard and Medium Grade

FOR ALL GENERAL WORK

DRIES VERY QUICKLY.

In bbls. of about 50 gallons.....	per gal., \$1.10
" ½ bbls. of about 30 gallons.....	" 1.15
" 5 or 10 gallon packages.....	" 1.20
" 1 gallon cans (6 in a case).....	" 1.30

No. 3—The Heaviest Grade

FOR WALLS AND SUBMERGED WORK

In bbls. of about 50 gallons.....	per gal., \$1.00
" ½ bbls. of about 30 gallons.....	" 1.05
" 5 or 10 gallon packages.....	" 1.10
" 1 gallon cans (6 in a case).....	" 1.20

Ruberine,—for roofs

In bbls. of about 50 gallons.....	per gal., \$1.05
" ½ bbls. of about 30 gallons.....	" 1.10
" 5 or 10 gallon packages.....	" 1.15
" 1 gallon cans (6 in a case).....	" 1.25

Universal,—a bright black

FOR STRUCTURAL IRON WORK

In bbls. of about 50 gallons.....	per gal., \$0.90
" ½ bbls. of about 30 gallons.....	" .95
" 5 or 10 gallon cans.....	" 1.00
" 1 gallon cans (6 in a case).....	" 1.10

INSULATING PAPERS

Odorless, Water and Acid Proof

ROLLS ARE 36 INCHES WIDE, AND CONTAIN 1000 SQUARE FEET EACH.

Universal	Single Ply, weight per roll 34 lbs.....	per roll, \$2.00
	Double Ply, " 45 ".....	" 2.40
P & B	1-Ply, weight per roll 32 lbs.....	" 2.50
	2-Ply, " 42 ".....	" 4.00
	3-Ply, " 62 ".....	" 6.00
Giant, P & B	1-Ply, weight per roll 30 lbs.....	" 3.00
	2-Ply, " 52 ".....	" 5.00
	3-Ply, " 96 ".....	" 7.00

RUBEROID ROOFING

A light wool felt (not paper), durable roofing. This is not made of tar. Stands 250 degrees heat. Will not run at any heat. Resists fire.

PRICE LIST

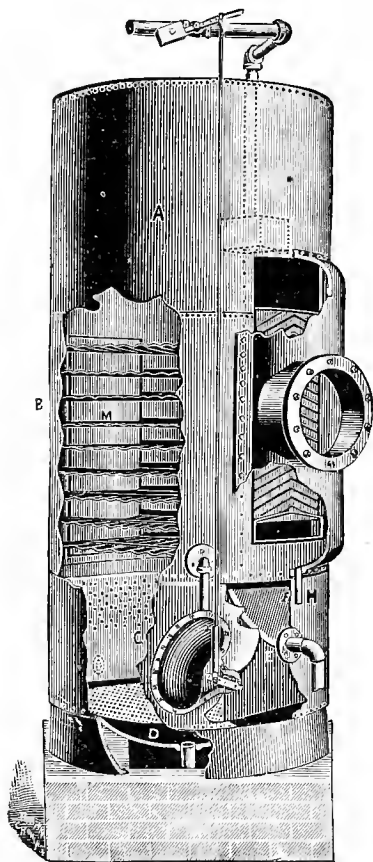
½-Ply, 22 lbs. per square of 100 sq. ft.....	\$1.75	2-Ply, 43 lbs. per square of 100 sq. ft.....	\$3.20
1-Ply, 30 " " 100 ".....	2.25	3-Ply, 51 " " 100 ".....	4.50

The cement necessary for seams and nails, and caps for laying the roofing, together with sufficient extra material to make a two (2) inch lap at seams, are included in these prices.

For convenience in shipping, the roofing is put up in rolls containing two squares each. The cost per roll is, therefore, twice as much as the cost per square.

PRICES F. O. B. FACTORY

STILLWELL'S PATENT LIME EXTRACTING HEATER AND FILTER COMBINED



WHAT WE CLAIM FOR IT.

We claim that, regarded simply as a **HEATER**, it is the best in the world; as a **LIME EXTRACTOR** it stands alone, unrivaled, in its perfect action. We claim that the use of this Heater will effect a saving of at least ten per cent. of fuel where soft water is used, and when "hard" and impure water is used, it will effect a saving of from fifteen to fifty per cent. of fuel, not to mention the saving to the boilers, in time, and in obviating the necessity occasioned by "scale," of frequently "blowing-off" and cleaning boilers, a job so dreaded by engineers, and so expensive to employers.

Full description and dimensions furnished on application.

PRICE LIST.

REGULAR UPRIGHT ROUND FORM.

Size	Horse Power Capacity	Appr'x. Ship- ping Weight	Price
No. 3	10	270	\$ 90.00
No. 4	10 to 20	450	130.00
No. 5	25 to 50	700	200.00

All sizes of above style are kept in stock.

The above prices do not include any pipes or extras, but simply the Heater with all holes tapped, and necessary flanges ready to set up and attach the steam and water pipes; and glass water gauge and bibb cock, which will be found packed inside the Heater for safe shipment.

Prices of Improved Heater and Filter with Oil Separating Device.

Size B, Capacity 10 to 20 H. P.	\$ 160 00
" C, " 20 to 50 "	230 00
" D, " 50 to 100 "	300 00

WATER-TUBE FEED-WATER HEATER

THE WAINWRIGHT IMPROVED.

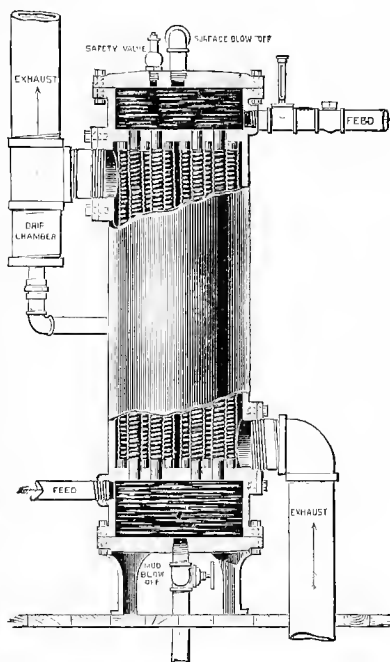
Indorsed by All Creamerymen.

In presenting this type of Heater, we desire to call attention to the superiority of a straight tube Heater over a coil, and especially one that is provided with a settling chamber and surface blow, thus combining all the advantages that are found in the water-tube Heaters of a higher price that are now in the market. In the construction of this Heater we have aimed at two points, namely, to furnish a Heater the construction of which is second to none, and at the same time to place the price no higher than is paid for a coil Heater.

It is universally admitted that a straight tube Heater that is provided with the proper means of blowing it off, and built so that it gives a chance for the impurities of the water to settle and be disposed of, is in every way better than a Heater that allows all the impurities to pass into the boiler, to foul and burn it out. This important thing cannot be done with a coil Heater, but in the heater that we present, ample means have been allowed to accomplish it.

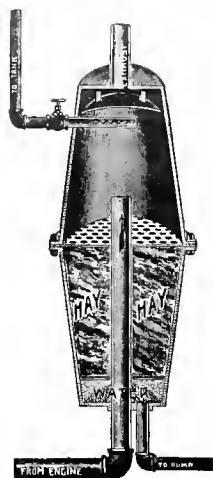
The operation of the Heater is as follows: The water enters at point marked feed, as shown by the arrow mark, passes into the settling chamber, thence up through the tubes into the water chamber, from which it passes to the boiler; the exhaust enters at bottom of shell, and finds exit at top as shown. This can be reversed if it is more convenient. Mud, also surface blow-offs, are provided, as shown. The Heater can be used in any position desired, the results being perfectly satisfactory.

We wish to call attention to the fact that copper tubes only are used in all of these Heaters; this in itself should claim the attention of all first-class engineers and steam users. Nearly all other Heaters are built with brass tubes, a metal that is composed of other metals, and is not a pure metal, the composition depending upon the honesty of the manufacturer and the pureness of the metals he uses. All tubes used in these Heaters are made of lake Superior copper, of a guaranteed fineness, thus making their durability beyond any question.



SIZES AND PRICES.

HORSE POWER.	DIAMETER IN INCHES.	HEIGHT IN INCHES.	SIZE EXHAUST IN INCHES.	SIZE FEED IN INCHES.	WEIGHT, POUNDS.	PRICE.
Up to 25	14 x	26 1/4	4	1	500	\$ 45 00
25 " 50	15 x	41 1/2	5	1	825	80 00
50 " 60	15 x	44 1/2	5	1	860	100 00
60 " 80	15 x	61 1/2	5	1	900	120 00
80 " 100	17 x	55 3/4	6	1 1/2	950	150 00



KELLEY'S CONDENSER, HEATER AND FILTER

The exhaust steam comes in at the bottom, through the exhaust pipe, and strikes the water (which is fed in from a tank above, through pipe marked "to tank") and throws it against the baffle plate at the top of the heater, after which the water falls and is filtered through the hay in the bottom half of the heater. Whatever steam is not condensed by coming in contact with the water escapes through the pipe in the top of the heater. The water is pumped from the heater to the boiler by an ordinary boiler pump. There is no packing in the joints of this heater to blow out and leak, but they are ground the same as an engine cylinder head.

Height.....	3 ft.
Diam. of center.....	18 in.
" " either end	12 "
Weight	200 lbs.
Price of heater, fitted for any size exhaust....	\$25 00

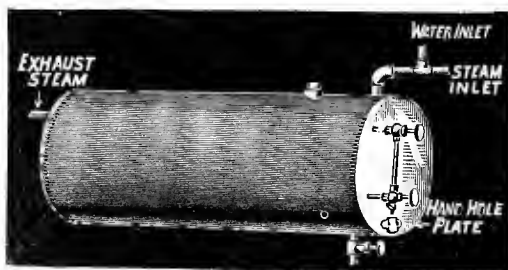
"ACME" WATER HEATER

This cut represents our new Water Heater for heating the water before it is pumped into the boiler. It heats the water to the boiling point by the exhaust steam. By the use of these heaters a saving of coal of from 20 to 40 per cent. is obtained.

We recommend the use of a steam pump in connection with these heaters, as they insure a steady flow of boiling hot water into the boiler. It can be set crossways above the boiler, where it is out of the way and takes up no space in the engine room.

As will be seen by the above cut, we connect the water supply pipe directly into the exhaust pipe. The steam pump connection is three inches above the bottom on the side of heater. A plug can be removed from the top of heater, to insert a hose, and a hand hole is on front end near bottom for cleaning. The exhaust is at the rear. With these heaters we supply a water gauge as shown in cut. Pipe and fittings are extra. The heater is 2 feet in diameter by 5 feet long.

Price with water gauge.....\$30 00



PUMPS

TO CORRESPONDENTS _____

In ordering a pump it is for the interest of the purchaser to fully inform us on the following questions:

1. For what purpose is the pump to be used?
2. What is the average pressure of steam carried?
3. What is the maximum quantity to be pumped per minute or hour?
4. To what height is the liquid to be lifted by suction? What is the length and diameter of suction pipe and the number of elbows or bends?
5. To what height is the liquid to be discharged or against what pressure? What is the length and diameter of discharge pipe?
6. What is the liquid to be pumped, hot or cold, clear or gritty, fresh, salt, alkaline or acidulous?
7. In ordering parts or describing details of sizes, give *shop* number stamped on steam cylinder.

DIRECTIONS FOR SETTING UP AND RUNNING PUMPS

Never use pipes of smaller size than given in the tables. When long pipes are used it is necessary to increase the size to allow for the increased friction. Especially must this be observed in suction pipes.

Use as few elbows, T's and valves as possible, as they greatly increase friction. Use full round bends rather than elbows.

Care should be taken to guard against leaks in the suction pipe, as a very small leak destroys the effectiveness of the suction of a pump.

When hot water is to be pumped, the difficulty of lifting by suction increases by the temperature. It should therefore be arranged to flow into the pump, if so hot as to vaporize, when the pressure of the atmosphere is removed.

A large vacuum or suction chamber placed on the opposite side of the pump from where the suction enters or on the suction pipe near the pump, is always advantageous, and when the pump is run at a high speed it is a necessity.

Ordinary speed to run steam pumps is from 75 to 100 ft. piston travel per minute. For continuous boiler feeding about one-half that speed is recommended.

Keep your pump clean and stuffing boxes well packed.

PUMPS

COVERED CRANK SUCTION AND FORCE

PRICES

For either shallow or deep well and suitable for 1¼-inch pipe.

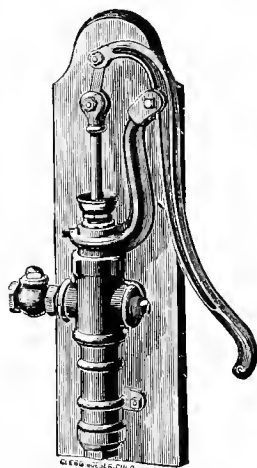
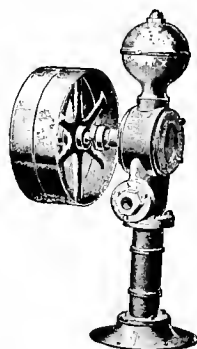
With tight and loose pulleys, 3x16.....\$30 00

“ crank and single pulley, 3x16..... 25 00

Speed per minute, 50

Above pump should have 3x16 cylinder.

For deep well, cylinders are extra. See page 51 for prices.



HAND BOILER FILLING

This cut shows boiler filling pump, which is used for filling boilers before starting the fire, and is valuable for washing the boiler. A hose should be connected to the discharge, 25 feet long, with a nozzle for washing the boiler or putting out fire. Air chambers extra.

SPECIFICATIONS AND PRICES

	Size Cylinder	Fitted for	With Plain Valves	With Metallic Valves
Without check valve.	2 in.	1-in. pipe.	\$ 8 00	\$10 00
With check valve....	2 “	1 “ “	10 00	12 00

We can furnish hose and connection, all ready for use, at lowest prices.

THE EUREKA MILK PUMP.

The Copper Milk Pump is intended for use either in feeding separator, or in disposing of skim milk. It has capacity sufficient for two separators, and is so constructed that it can be conveniently placed in any desired position.

The counter shaft, although made particularly for this pump, can be used for any style of suction pump.

PRICES:

Suction Copper Milk Pump, each.....\$12.00

Suction and Force Copper Milk Pump, each.... 15.00

Counter Shaft, complete..... 10.00



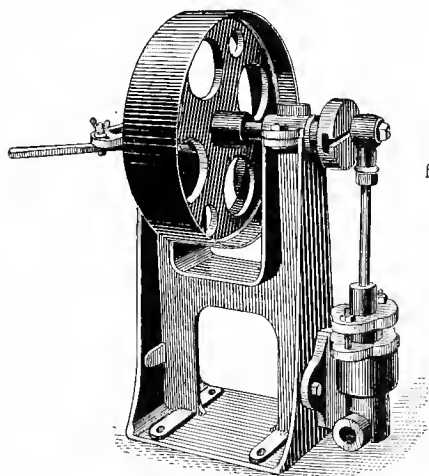
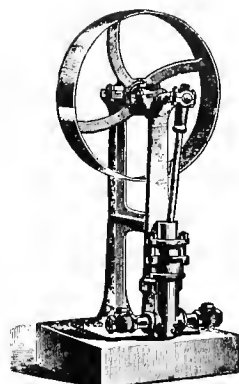
PUMPS

SOLID PLUNGE BOILER FEED PUMP

This Pump is a solid plunge pump with detachable valves, which can be replaced at any time with slight expense. The Pump should run about fifty revolutions per minute. We will furnish any sized pulley desired.

Size of Plunger	2 $\frac{3}{16}$ in.
Diameter of Pulley	20 "
Face of Pulley	3 "
Speed, per minute	50 rev.
Weight	130 lbs.
Height over all	39 in.

Price of Pump, with 20-in. Pulley.....\$25 00



STEAM BOILER FEED PUMP

Price considered, this Pump is unsurpassed for simplicity and durability.

Diam. of T. & L. Pulley....	16 in.
Face of T. & L. Pulley	3 "
Speed per minute	30 to 50 rev.
Inlet and Outlet, size	1 in.
Height	2 ft.
Weight	175 lbs.

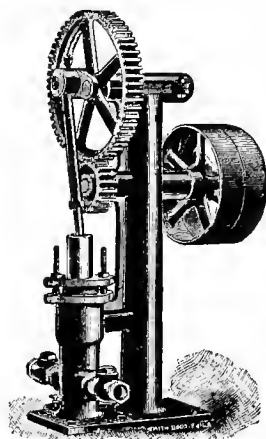
PRICE

With $\frac{3}{4}$ inch check valve.....\$20 00

THE IMPROVED GEARED BOILER FEED PUMP

This is the neatest Pump in the market. Strong, durable and positive in action. Bearings long and Babbitted. Patent Frictionless Swinging Check Valves. Parts interchangeable.

Number	Diam. and Length of Stroke	Strokes per min.	Diam. and Face of Pulleys	Revolution of Pulleys	Fitted for	Capacity	Price
1	1 $\frac{1}{2}$ x 4 in.	40	8x2 in.	120	$\frac{3}{4}$ in. Pipe	15 H. P.	\$30 00
2	2 x 4 $\frac{1}{4}$ "	40	10x2 "	120	1 " "	30 "	40 00
3	3 $\frac{1}{4}$ x 5 "	40	12x3 "	160	1 $\frac{1}{2}$ " "	60 "	60 00



FORCE PUMP

With Back Outlet and Stop Cock.

This cut represents very accurately Force Pump Standard with the cock spout and back outlet. This standard is particularly adapted to forcing water into an elevated tank, as it has an outlet behind the spout for that purpose. It is made heavy and strong for deep wells. The suction pipe connection is under the spout, which prevents liability to the destructive action of the frost. It is made anti-freezing in the usual way by a drip hole in the pipe below the base of pump. This Pump is equally well adapted for windmill, steam power or hand. Following are sizes and prices of Pump Standards:

	Fitted for	Height.	Price.
No. 4	1 1/4 inch pipe.	47 inches.	\$14 50
No. 5	1 3/4 inch pipe.	49 inches.	15 50
No. 4	2 inch pipe.	51 inches.	\$16 00
No. 5	2 inch pipe.	53 inches.	17 00

Cylinder, Pipe and Plunger Rod are extra. With 10-inch stroke, for 2-inch pipe, a forked rod coupling for tubular wells is furnished when needed.

BRASS CYLINDERS.

Size.	Fitted for Pipe	Iron Attachments and Follower, Brass Cage and Valve.	Iron Attachments and all Brass Plunger.	All Brass.
2 1/4 x 16	1 1/4 in.	\$ 9 75	\$11 25	\$14 50
2 1/2 x 16	1 1/2 "	10 25	11 75	16 00
2 3/4 x 16	1 3/4 "	10 75	12 25	16 50
3 x 16	1 1/2 "	11 25	12 75	17 25
3 1/4 x 16	1 3/4 "	12 00	14 00	19 00
3 1/2 x 16	1 3/4 "	13 50	16 00	22 25

IRON CYLINDERS.

Size.	St o.k.	Fitted for	Price.
2 x 16	10 inch.	1 in. Pipe	\$6 00
2 1/4 x 16	10 "	1 1/4 "	6 50
2 1/2 x 16	10 "	1 1/2 "	7 00
2 3/4 x 16	10 "	1 3/4 "	7 50
3 x 16	10 "	1 1/2 "	8 00
3 1/4 x 16	10 "	1 3/4 "	9 75
3 1/2 x 16	10 "	1 1/2 "	11 25

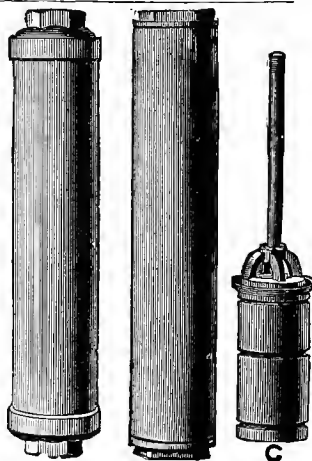
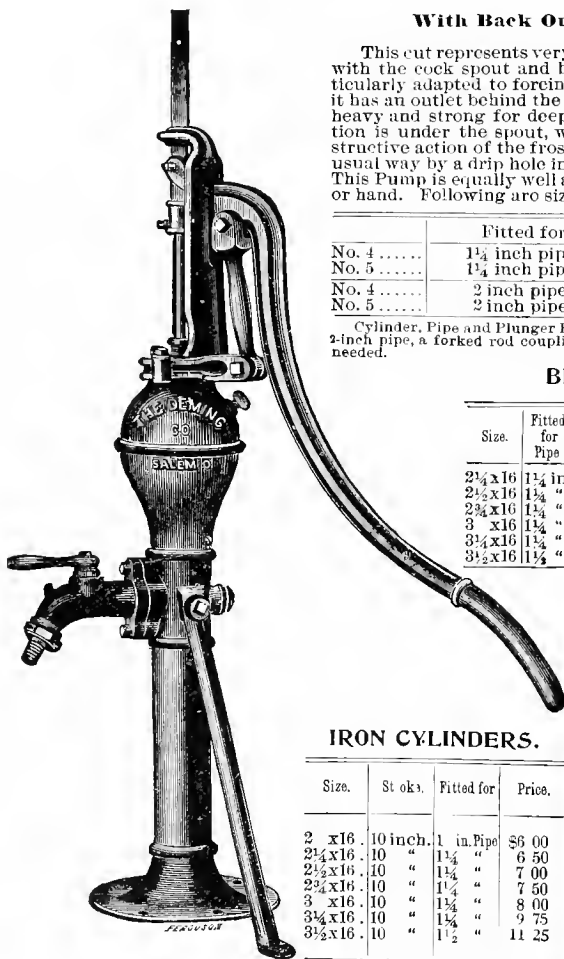
PUMP RODS.

3/8 Black Iron, 16 ft. lengths, per lb.....	\$0 04	3/8 Galvanized Iron, 16 ft. lengths, per lb....	\$0 05
7-16 Black Iron, 16 ft. lengths, "	04	7-16 Galvanized Iron, 16 ft. lengths, " ..	05
Steel Rods extra, per lb.....			\$0 02

COUPLINGS FOR PUMP RODS.

PRICES.

Fitted for Rod.....	3/8	7-16	3/8 x 7-16
Threads to inch	14	12	14 x 12
Malleable, per lb.....	\$0 40	\$0 40	\$0 40
Galvanized, per lb.....	60	60	60

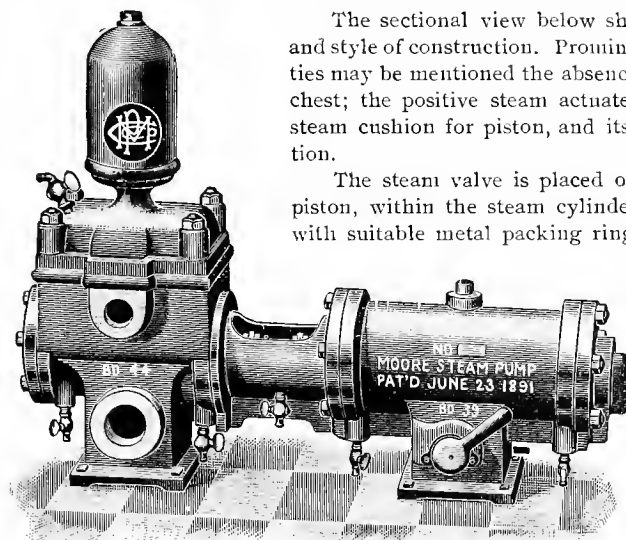


THE MOORE INDEPENDENT STEAM PUMP

The sectional view below shows the working parts and style of construction. Prominent among its peculiarities may be mentioned the absence of the ordinary steam chest; the positive steam actuated valve; the noiseless steam cushion for piston, and its simplicity of construction.

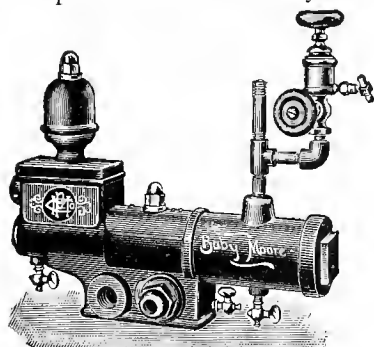
The steam valve is placed on the body part of the piston, within the steam cylinder, with heads supplied with suitable metal packing rings. Within the body of the piston are the steam ports, leading to each end of the cylinder, registering alternately with the annular grooves of the valve in its actuation.

The longitudinal sliding motion of the valve on its seat is limited between the piston heads; the valve



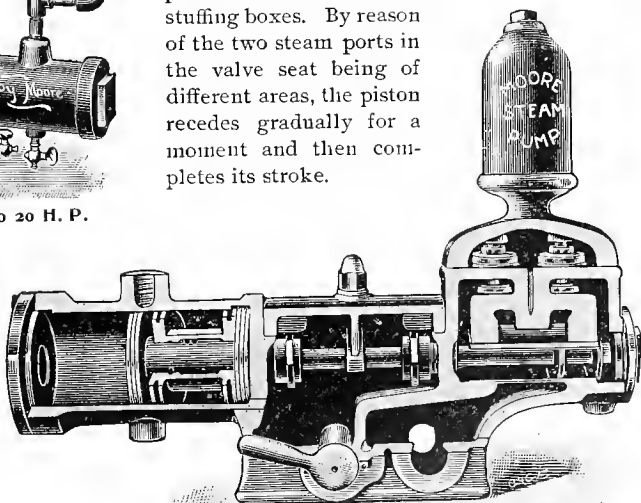
Exterior View.

being carried on its reciprocation by the piston, until its head passes the steam inlet port in center of steam cylinder, thus admitting steam between the valve head and piston head, and forcing the valve against the opposite piston head; changing the relation between the annular grooves in the valve and steam ports in the piston, causing a reverse motion of the piston, thence through the hollow piston-rod into exhaust chamber between the stuffing boxes. By reason of the two steam ports in the valve seat being of different areas, the piston recedes gradually for a moment and then completes its stroke.



Style "B" Up to 20 H. P.

We invite all factory men to inspect this pump before buying elsewhere. It will be money in your pocket.



Sectional View of Moore Steam Pump.

Sizes B, BB, BC and CC.

GENERAL ADVANTAGES

Its simplicity of construction, its small number of parts, its large wearing surface for the valve, together with its positive valve motion, with no possible chance of its becoming balanced on its center, through leakage or other cause, makes it the most desirable pump on the market.

By the method used in restricting the exhaust steam, with the slow start and steam cushion for the piston, the speed of the pump is automatically regulated—never running too fast to take suction, or fast enough to injure its working parts should the water supply give out. It can be regulated to supply water in the boiler to a uniform height, without attention.

As it will work with a lower steam pressure than an injector or most steam pumps, the boiler can be filled after stopping the engine, without any extra fire. **As a boiler feeder, this pump has no equal.** It is made to couple on either right or left. With the working parts entirely enclosed, it can be set up in the most convenient place, without fear of any damage from grit or dust.

The stuffing boxes being enclosed in the exhaust chamber, in the three smaller sizes, there is no drip or steam escaping into the room, and by means of the lever on the front side of the pump, the exhaust steam and all drippings from the stuffing boxes can be thrown into the suction chamber to warm the water, and is then returned to the boiler.

SIZES AND PRICES

MOORE STEAM PUMPS

NAME	SteamCylinder	WaterCylinder	Stroke	Pipe Connection				Displacement per Stroke	Gallons per Minute	Gallons per Hour	Horse Power Guaranteed	Price	Extra for Hand Attachment
				Steam	Exhaust	Suction	Discharge						
B.	2 1/4	1 3/8	2	1/4	3/8	3/4	1/2	.015	3.33	200	20	\$30.00	\$5.00
B. B.	3	1 1/2	2 1/2	3/8	1/2	3/4	1/2	.0191	5.83	350	35	50.00	6.50
B. C.	3	1 3/4	3	3/8	1/2	1	3/4	.0312	8.33	500	50	60.00	7.50
C. C.	3	2	3	3/8	1/2	1 1/4	1	.0408	9.18	550	55	65.00	7.50
B. D.	4	2 1/2	4	3/8	3/4	1 1/2	1 1/4	.0850	11.66	700	70	75.00	....
B. E.	5	2 1/2	4	1/2	3/4	1 1/2	1 1/4	.0850	13.33	800	80	87.50	....
B. F.	5	2 3/4	4	1/2	3/4	1 1/2	1 1/4	.1028	15.00	900	90	90.00	....
B. G.	5	3	4	1/2	3/4	1 1/2	1 1/4	.1224	16.66	1000	100	100.00	....

GUARANTEE TO USERS OF MOORE STEAM PUMPS

We guarantee all Steam Pumps made by us to be equal to the best the market affords, in quality and service.

All pumps sold from our factory, or through our agents, are made of the best material for the purpose, and in the best workmanlike manner. They are thoroughly tested by, and under the supervision of, one of the company, and any pump ordered according to our tables can be returned at our expense and purchase money refunded, or another pump furnished if desired, if it does not perform the service.

All parts are made duplicate, interchangeable, and can be furnished promptly.

Pumps will be furnished to responsible parties and ample time given to test the same.

Moore Artesian or Deep Well Engine

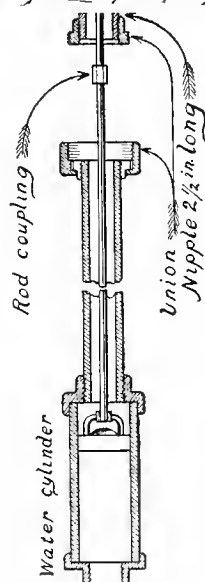
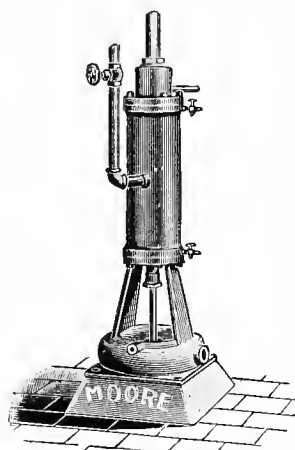
The cut on this page is intended to display the pump cylinder, pipes, rods and head, ready to couple together

DIRECTIONS FOR CONNECTING

First measure up and cut pipe and rods proper length. A nipple should be used next the head, onto which a part of the union should then be fitted. When pipe is in the well, place the head directly over the pipe, draw up the pump rod and pull down the piston rod, couple these with a rod-coupling; then drop the head into place and connect the pipe by means of the union shown in cut.

PRICES AND DETAIL OF DEEP WELL ENGINES

Size	Floor space in inches	Shipping weight in lbs.	Pipe connections				Elevation of water—feet	Diameter in inches of water cylinder	Pipe connections, water cylinder—inches	Weight of water to be lifted at each stroke, $\frac{1}{2}$ lb. to square in, one foot rise	Lifting power of engine at 80 lbs. steam less 20 per cent.	Capacity per stroke—gallons	Strokes per minute—ordinary way	Capacity per minute—gallons	Capacity per hour—gallons	Capacity per 10 hours—gallons	Approximate bbls. per day (10 hours) (40 gals.)	Price for upright head	
			Steam in inches	Exhaust in inches	Suction in inches	Delivery in inches												\$80.00	\$10.00
5 x 10	12 x 12	225	2	2	2	2	25	6	3	353	1256	1,2240	50	61.20	3672	36720	900		
			2	2	2	2	75	5	3	490		.6855	30	34.00	2040	20400	500		
			2	2	2	2	100	4	2	628		.5440	25	13.60	1239	12390	300		
			2	2	2	2	150	3	1	721		.4165	25	10.41	816	8160	200		
			2	2	2	2	200	3	1	706		.3060	25	7.65	624	6240	150		
			2	2	2	2	250	2	1	613		.2125	20	5.31	459	4590	100		
4 x 6	9 x 10	100	2	2	2	2	300	2	1	471		.1360	20	3.40	204	2040	50		
			2	2	2	2	25	4	2	108	800	.4131	50	20.65	1239	12390	300		
			2	2	2	2	50	4	2	314		.3264	45	15.69	941	9410	230		
			2	2	2	2	75	3	1	356		.2499	40	9.99	589	5890	150		
			2	2	2	2	100	3	1	353		.1836	35	6.42	385	3850	95		
			2	2	2	2	150	2	1	307		.1275	30	3.82	229	2290	55		
			2	2	2	2	200	2	1	314		.0816	25	2.04	122	1220	30		
			2	2	2	2	250	1	1	300		.0625	20	1.25	75	750	20		
			2	2	2	2	300	1	1	265		.0450	20	.91	55	550	10		



SIZES: 4 x 6 AND 5 x 10 INCHES.

The Marsh Steam or Gas Pressure Engine

FOR DEEP WELL PUMPS

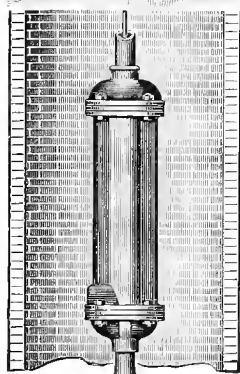
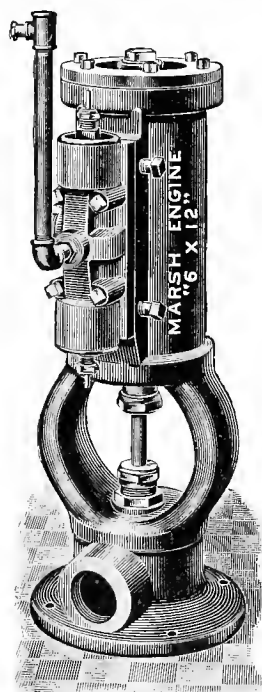
This Engine is designed for general pumping, to take the place of windmills and other cumbersome and expensive contrivances. It is adapted for pumping water from deep or shallow wells for farms, factories, dwellings, etc. Is self-regulating in every

way and is the cheapest and most economical device for the above purpose yet offered. It can be attached to any plunger rod; will elevate water from any depth and do it constantly, without any attention. Don't buy a deep well pump until you have seen this Engine in operation.

We make this Engine in three sizes, as follows: four by six, four by eight and six by twelve inches

CAPACITY OF MARSH DEEP WELL PUMPING ENGINE

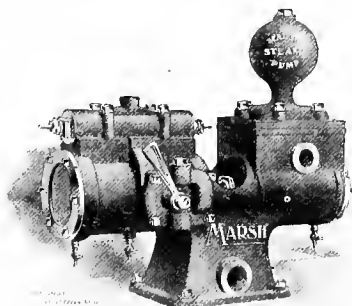
Showing size of Water Cylinders suitable for elevations of 25 to 300 feet, with 80 lbs. steam pressure.



Size of engine	Elevation of water in feet	Size of water cylinder	Size of pipe connection	Rev. per min.	Capacity per stroke	Capacity in gal. per hour	Size of steam pipe	Size of exhaust pipe	Weight of Engine.	Price
4 in. by 6 in.	25	4½	2	40	.4131	990	¾	¾	70 lbs.	\$40.00
	50	4	2	40	.3264	780	"	"		
	75	3½	1½	40	.2499	590	"	"		
	100	3	1½	40	.1836	440	"	"		
	150	2½	1¼	40	.1275	300	"	"		
	200	2	1	40	.0816	195	"	"		
	250	1¾	1	40	.0625	150	"	"		
4 in. by 8 in.	300	1½	1	40	.0459	110	"	"	80 lbs.	\$50.00
	25	4½	2	40	.5508	1320	¾	¾		
	50	4	2	40	.4352	1040	"	"		
	75	3½	1½	40	.3332	800	"	"		
	100	3	1½	40	.2448	585	"	"		
	150	2½	1¼	40	.1700	408	"	"		
	200	2	1	40	.1088	260	"	"		
6 in. by 12 in.	250	1¾	1	40	.0833	200	"	"	230 lbs.	\$100.00
	300	1½	1	40	.0612	145	"	"		
	25	6	3	30	1.468	2640	¾	1		
	50	5	2½	30	1.02	1835	"	"		
	75	4½	2	30	.8262	1485	"	"		
	100	4	2	30	.6528	1175	"	"		
	150	3½	1½	30	.4998	900	"	"		
	200	3	1½	30	.3672	660	"	"		
	250	2½	1¼	30	.2550	460	"	"		
	300	2	1	30	.1632	290	"	"		

NOTE.—Capacity per hour is for Single Acting Water Cylinders. Double Acting Water Cylinders can be used on short suction lifts and will discharge twice the amount of water. In second column the elevation in feet means the combined suction and discharge in feet.

MARSH STEAM PUMP



A very simple, durable and reliable independent Steam Pump for pumping hot or cold liquids of any kind. Has these advantages: A perfectly balanced self-governing valve, thereby using less steam than any pump on the market; all parts are interchangeable; brass lining in water cylinder; all-metal, noiseless water valves. The most economical boiler feeder made.

The lever shown on the front of the pump is attached to a two-way valve, and is used to deflect the exhaust steam, either into the atmosphere or into the suction chamber of the pump. When the exhaust steam is deflected into the suction chamber, it is condensed by the cold water and returned with its heat to the boiler. Thus all the heat employed in the steam which runs the pump is saved, and the work done by the pump is obtained without cost.

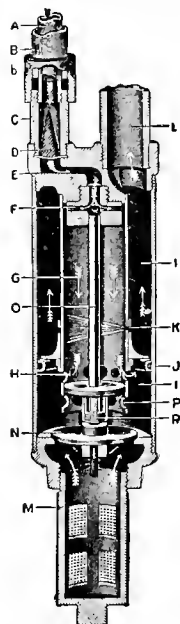
These pumps are fully guaranteed and placed on 30 days' trial.

	B	BB	C	D	E
Diameter of steam cylinder.....	2½	3	4	5	5
Diameter of water cylinder.....	1¾	1¾	3	3	3
Length of stroke.....	2	2	3	3½	6
Size of steam pipe.....	¾	¾	¾	½	½
Size of exhaust pipe.....	¾	½	½	¾	¾
Size of suction pipe.....	¾	1	1¼	1½	1½
Size of discharge pipe.....	½	¾	¾	1	1¼
Strokes per minute.....	200-350	175-300	150-250	140-200	130-180
Gallons per stroke.....	.015	.0208	.0702	.110925	.1836
Gallons per minute.....	3.33	6.66	10.83	16.66	25
Gallons per hour.....	200	400	650	1000	1500
Maximum H. P. guaranteed.....	20	35	60	100	150
Floor space.....	7x12	8x16	10x21	11x23	10x32
Weight.....	23 lb.	50 lb.	100 lb.	140 lb.	250 lb.
Price without lever.....	\$30 00	\$50 00	\$75 00	\$100 00	\$150 00
Price with lever.....	35 00	55 00	85 00	110 00	.....
Price of water packing.....	10	10	15	20	.....
Pieces of water packing required...	2	2	3	3	.....

THE ERWIN STEAM RAMS.

(Patented in 1895 by JAMES B. ERWIN and WM. KIRKWOOD.)

For Elevating Water for apartment buildings, residences, summer resorts, hotels, factories, farm use, stock yards, railroad tanks, cemeteries, mining and irrigation purposes, steamboats, villages, etc.



Erwin Steam Ram.
(Sectional view.)

The Erwin Steam Ram is simple in construction, economical in use of steam and requires no packing, no oil, no attention. It is suitable for tubular and other wells, and for raising water from cisterns, lakes or streams.

We recommend our Standard Rams for forcing water to heights up to 60 feet, and similar sizes of our Low-lift Rams for elevating larger quantities to heights up to 40 feet. Capacities range from 400 to 10,000 gallons per hour.

When the Erwin Steam Ram is at work, the water is elevated or forced by the alternate action of steam and atmospheric pressure. The steam having first driven the water from the ram, is instantaneously condensed and a vacuum is formed. A volume of water is then driven into the ram by atmospheric pressure, and not only fills the vacuum chamber, but a large proportion passes on through the ram and into the discharge pipe. The steam and air thus co-act to make its discharge of water continuous. To the facts that a good portion of the work is done by the atmosphere and that friction is almost entirely eliminated, the high efficiency of the ram is largely due.

By connecting the discharge pipes of two of our single rams of the same size with a common discharge chamber similar to the arrangement shown opposite, a double ram is formed of twice the capacity of a single one. Each ram forming the combination has a separate steam pipe but the same discharge pipe. While they work in unison in forcing water, either one can be shut down by turning off its steam valve without stopping the other. In this they differ from ordinary duplex pumps where one cylinder at a time only forces water, and where, if any part should give out, both cylinders would become inoperative.

On account of their small diameter the Single Rams may be suspended from their steam and water pipes below the surface of the water in small tubular wells in addition to other places.

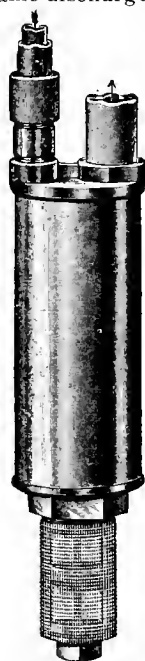
The rams are made of brass with steam metal bearings. The strainer is of malleable iron with a brass screen. All parts are built interchangeable and put together with the utmost care. Each standard ram is adapted and tested, before leaving the shop, for raising water up to 60 feet above the ram itself, and each low-lift ram for elevating water 40 feet above itself. The capacities given below are all estimated on a 40-foot elevation with 75 pounds steam pressure.

PRICE LIST OF SINGLE STEAM RAMS.

Style.....No.	STANDARD.					LOW-LIFT.	
	A2	A2½	A3	A4	A5	C3	C5
Steam Pipe.....in.	1½	3½	3½	1½	3½	1½	1
Covering Pipe.....in.	1½	3½	3½	1	1½	1	1½
Discharge Pipe.....in.	3½	1	1	1½	2	1½	2
Inlet Pipe.....in.	1	1½	1½	2	3	1½	3
Capacity per Hour.....gal.	400	700	1000	2000	3300	1250	3900
Diameter of Outer Cylinder.....in.	2	2½	3	4	5	3	5
Height.....in.	10	12	12	14	17	12	17
Size Well Casing Ram will enter (inside diameter).....in.	2½	3½	3½	4½	5¾	4	5½
Approx. Shipping Wt.....lbs.	5	11	13	22	31	12	29
Price.....each	25.00	30.00	35.00	50.00	60.00	35.00	60.00

The height of the ram does not include bottom strainer, but this and the steam pipe nipple, with its screen only, are supplied with each one.

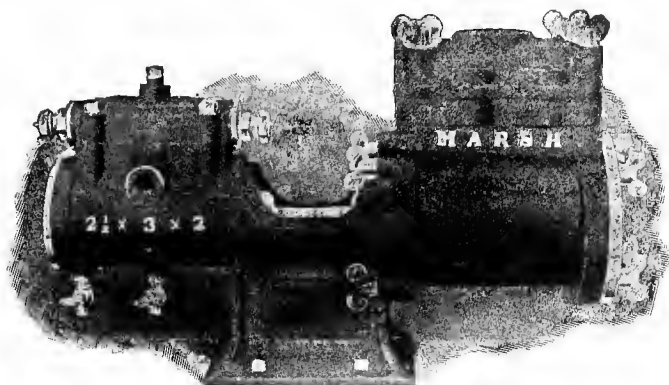
SEND FOR SPECIAL ILLUSTRATED CATALOGUE.



Erwin Single Steam Ram.

STEAM MILK PUMPS

"MARSH" SINGLE CYLINDER



The illustration shows the new "Marsh" Pump, designed to handle creamery products, and is especially adapted for elevating whole milk, cream or skimmed milk.

The pump cylinder can be quickly taken apart for cleansing without the use of a wrench—being provided with thumb nuts at fastening studs, as shown in cuts, and pipe connections made with hand grip unions. All parts of pump cylinder are made of best iron and steel—no brass.

Creamery operators will appreciate the advantages offered by this independent steam pump over the ordinary plunger or rotary belt-driven machine, as it can be used when the engine is not running—occupies little space and can be located where most convenient—and can be regulated to deliver any required amount of liquid within its capacity, ranging from 25 to 1,200 gallons per hour.

Size, $2\frac{1}{2} \times 3\frac{1}{2} \times 2$.

Price\$50 00

"MARSH" DOUBLE CYLINDER

Designed especially for pumping New and Skimmed Milk in Skimming Stations

Without pulleys, shafting or belting. It is self-regulating in every way, and it is the cheapest and most economical device for the purpose yet offered.

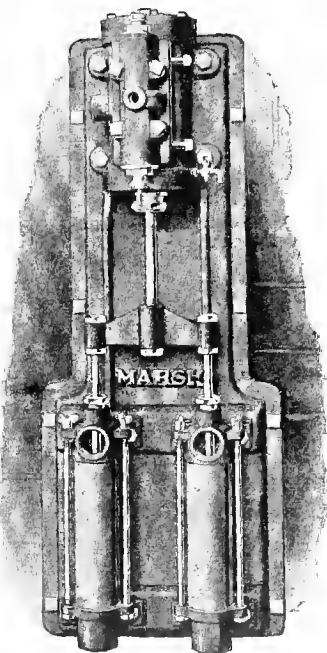
The pump cylinders are nicely finished, and are constructed entirely of brass, the rods are connected by yoke to a 4x6 Marsh engine. Steam pipe $\frac{3}{8}$ in., exhaust $\frac{3}{4}$ in.

Cylinders and pistons are easily removed for cleaning.

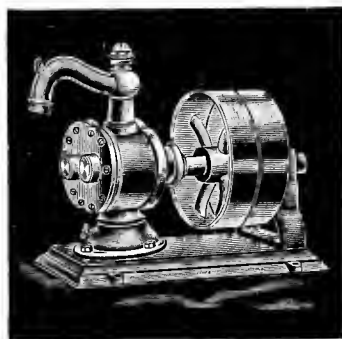
The engine and pump cylinders are mounted upon a neat and substantial iron base plate, and can be fastened to post or side of wall.

PRICES

With $2\frac{1}{2}$ -inch Milk Cylinder\$85 00
 " 3- " " " 95 00



ROTARY FORCE PUMPS



These Pumps are indispensable in a creamery, and for pumping milk and skimmed milk are first class. So much depends on them that they should be of the very best manufacture, exact and uniform in the work. We handle only the highest grades, because of the fact that nothing about a creamery causes more trouble than cheap and unreliable rotary pumps.

SIZES, DIMENSIONS AND PRICES

NUMBER	SUCTION PIPE.	DISCHARGE PIPE.	SIZE PULLEYS.	AT 100 REVOLUTIONS PER MINUTE.	PRICE, IRON.
1	1¼ in.	1 in.	7 x 2½ in.	Dis. 13 gal.	\$27 00
2	1¼ in.	1 in.	7 x 2½ in.	Dis. 14 gal.	32 00
3	1½ in.	1¼ in.	7 x 2½ in.	Dis. 17 gal.	38 00
4	1½ in.	1½ in.	11 x 3 in.	Dis. 27 gal.	48 00
5	2 in.	2 in.	11 x 3 in.	Dis. 36 gal.	54 00
6	3 in.	2½ in.	14½ x 4 in.	Dis. 55 gal.	65 00

EXTRAS FOR ROTARY PUMPS

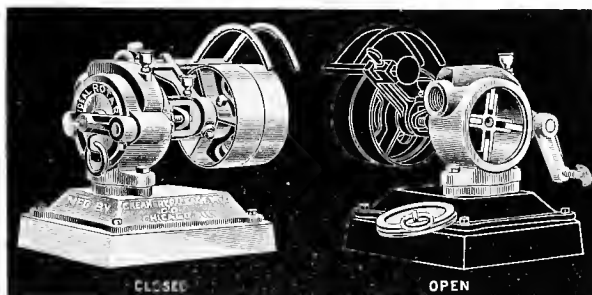
	No. 1.	No. 2.	No. 3.
Case, Cover, Stuffing-Boxes and Caps.....	\$8 00	\$9 00	\$10 00
Cam with Short Shaft.....	3 50	4 00	4 50
Cam with Long Shaft.....	5 00	5 50	6 00
Small Base, with Valve Seat.....	1 50	1 75	1 75
Bed Plate.....	4 00	4 50	5 00
Spout and Cap.....	1 00	1 00	1 50
Pulleys, each.....	2 00	2 50	3 00
Outside Bearing.....	1 00	1 25	1 25
Drain Screws.....	25	25	25

In ordering extras, state make and size of pump.

THE IDEAL ROTARY FORCE PUMP.

A Milk Pump that can be cleaned.

SOMETHING ENTIRELY NEW.



This Pump is new and novel, embracing several new features of importance, unlike and superior to any other rotary Pump ever constructed.

It is designed for pumping milk in factories, but is just as well adapted to the pumping of water. The case is lined with brass and the cams are of solid brass; and the metal so chosen as to hardness that it promises long life to the Pump. It is fitted with an easy working belt shifter, the check valve is of solid brass, so constructed that no leather is required, hence hot fluids can be run through it without injurious effect. A new feature in this Pump is an oil cup on the top of the cylinder through which the inner parts of the Pump may be lubricated to prevent wear if run without pumping. Another advantage presented in this Pump is, it is noiseless.

At a speed of 100 this Pump will supply several separators, and it will seldom be found necessary to run it at a higher speed (although much higher speed is easily attained), and by keeping the speed down as low as possible for the work demanded there will be less overflow and the Pump will not be so rapidly worn.

Great care is taken to make this Pump perfect in every part. It is so constructed that it can be taken apart in a few moments and is easily cleaned. The cuts show the pump open and closed. It is made in three sizes, with a little greater capacity than other makes of Rotary Pumps.

We send these Pumps out on trial to responsible parties.

SIZES AND PRICES.

No. 1	.....	\$27 00
No. 2	.....	32 00
No. 3	.....	38 00

EXTRAS FOR PENN'S PUMPS.

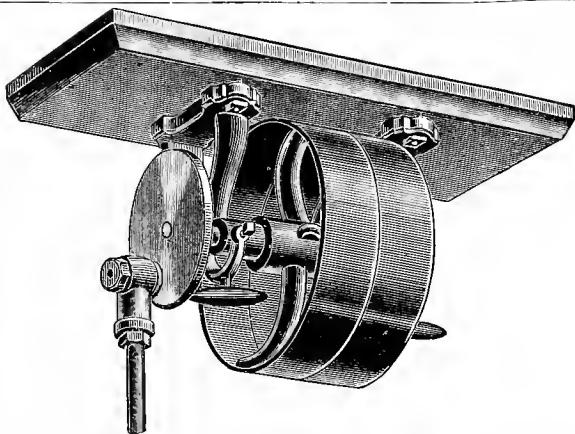
No. 8.	Base.....	\$2 50	No. 11.	Dowels, per set.....	20
No. 9.	Case.....	4 00		Stuffing Box Gland.....	25
No. 5.	Cap	1 25		Rubber Jacket.....	35
No. 7.	Spindle Support.....	1 25		Pulleys, per set.....	3 00
No. 10.	Belt Shifter Arm.....	75		Set Collar.....	15
	Belt Shifter.....	50		Oil Cups.....	80
	Head and Spindle	3 25		Bottom Valve, complete	1 50
	Cams, per set.....	2 00		One Poppet for Valve...	50
	Springs, per set.....	20			

In Ordering Extras always give serial number of pump which is stamped on top of cylinder.

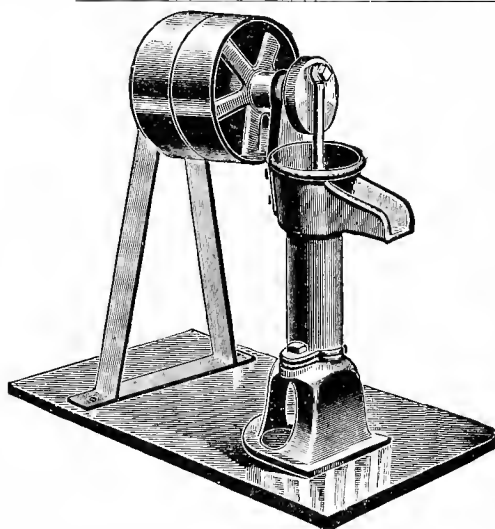
BELT PULLEY POWER PUMPING JACK

Counter shaft, with tight and loose pulleys, crank plate, stub rod connection and hangers. Made in two sizes. Can increase pulleys to 24x4 for large Jack and 16x3 for small Jack.

Eccentric for either size, each \$2.00



Size Pulleys	Shaft	Hangers	Price
Large Jack 12x3	1 $\frac{7}{16}$	12 in. Drop	\$15 00
Small " 10x2	1 $\frac{3}{16}$	8 in. "	12 00



POWER PORCELAIN- LINED MILK PUMP

Our Porcelain-Lined Pitcher Pump is arranged to run by power. This pump will be found very convenient to raise the milk from the receiving vat to the tempering vat. If so desired we can attach another pump on opposite end to pump the skim milk at the same time.

PRICES

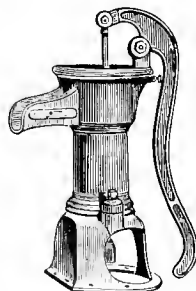
Single Pump, as above,
complete. \$10 00
Double Pump, as above,
complete. 20 00

PATENT PORCELAIN-LINED PITCHER PUMP

With brass valve seat and revolving brake, bolt fastenings and cut-off base. Designed for pumping milk or buttermilk.

PRICES

No. 1, 2 $\frac{1}{4}$ inch bore,	$\frac{3}{4}$ to 1 inch pipe	.....	\$5 00
" 2, 3 "	1 " 1 $\frac{1}{4}$ "	.....	5 50
" 3, 3 $\frac{1}{2}$ "	1 $\frac{1}{4}$ " 1 $\frac{1}{2}$ "	.....	6 25
" 4, 4 "	1 $\frac{1}{2}$ "	.....	7 50
" 5, 4 $\frac{1}{2}$ "	2 "	.....	10 50

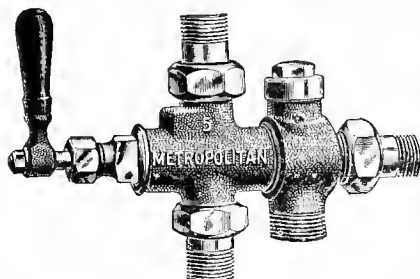


Open Spout.

INJECTORS

THE

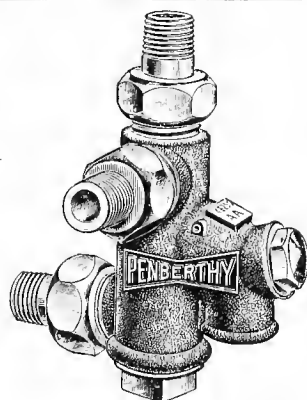
"METROPOLITAN" AUTOMATIC



Size	Size of Pipe Connections			Capacity with Steam Pres. 80 lbs. 2 foot Lift	Horse Power	Price
	St'm	Suc.	Del.			
2	3/8	3/8	3/8	60 gals.	4 to 6	\$15 00
3	1/2	3/8	3/8	80 "	6 to 8	16 00
4	1/2	1/2	1/2	120 "	8 to 15	18 00
5	3/4	1/2	1/2	165 "	15 to 20	20 00
6	3/4	3/4	3/4	250 "	20 to 30	25 00
8	3/4	3/4	3/4	350 "	30 to 45	30 00

THE

PENBERTHY



Number	Size of pipe connections	Gallons per hour. 65 lb. pressure	Horse power	Price
OO.....		60	4 to 8	\$16 00
A.....	1/2	85	8 to 12	18 00
AA.....	1/2	120	12 to 16	20 00
B.....	3/4	220	16 to 28	25 00
BB.....	3/4	300	28 to 40	30 00
C.....	1	430	40 to 57	40 00
CC.....	1	575	50 to 60	45 00
D.....	1 1/4	750	60 to 95	55 00

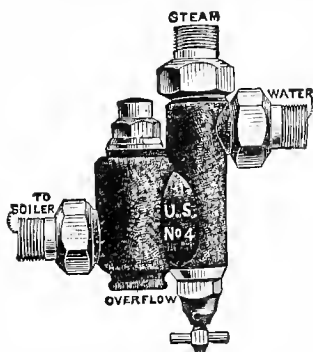
Style D
Penberthy Connection

U. S. AUTOMATIC INJECTOR

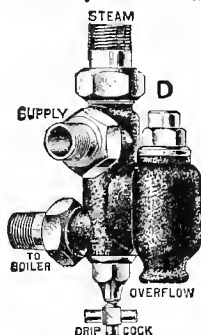
EFFICIENCY 100 PER CENT.

In regard to the economy of the U. S. Injector, that instrument shows an efficiency of 100 per cent, is ideally perfect, because no steam is wasted and all the heat, not employed in the thermodynamic operation of forcing water into the boiler, is saved by being returned to the boiler from which it issued.

Great Saving of Labor, Fuel, Water and Annoyance.



U. S. Injector.

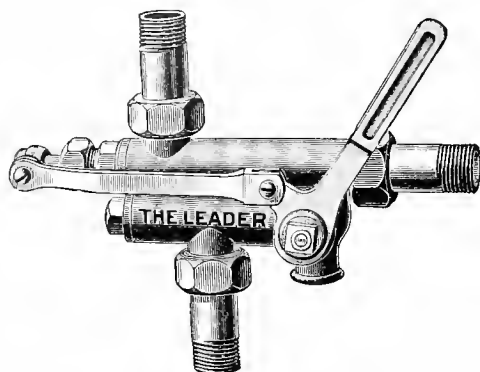


This style in stock in sizes Nos. 2, 3, 4 and 5.

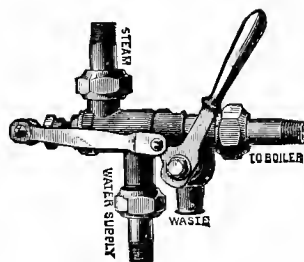
E	All Pipe Connections	Capacity Gallons Per Hour.		Horse Power.	Price.
		Max.	Min.		
00	1/4 in.	36	15	1 to 4	\$13 00
0	3/8 "	65	28	3 " 8	14 00
1	3/8 "	90	40	6 " 10	16 00
2	1/2 "	125	60	8 " 15	18 00
3	1/2 "	170	75	15 " 20	20 00
4	3/4 "	250	125	20 " 30	25 00
5	3/4 "	340	140	30 " 40	30 00
6	1 "	475	250	40 " 60	40 00
7	1 "	575	300	60 " 70	45 00
8	1 1/4 "	750	350	70 " 95	55 00

INJECTORS

“LEADER”



“EXCELSIOR”



PRICE LIST

For Either of the Above Injectors

No. of Injector.	Size of Pipes.		Horse Power of Boiler, Will Feed.	Gallons per Hour, 60 lbs. Steam.	List Price.
	Steam Pipe.	Suction and Feed.			
1	3/8	3/8	3 to 7	60	\$16 00
2	3/8	3/8	7 to 10	90	18 00
3	1/2	1/2	12 to 18	150	22 00
4	1/2	1/2	18 to 25	220	25 00
5	3/4	3/4	25 to 35	300	30 00
6	3/4	3/4	35 to 45	400	35 00
7	3/4	1	45 to 60	500	40 00

We furnish repairs for all kinds of Injectors and Inspirators.

EJECTORS

THE “X-L”



LIFTS WATER 20 TO 25 FEET
ELEVATES 30 TO 70 FEET

Size, Brass.	Steam Connection.	Suction and Delivery.	Capacity per Hour, 60 lbs. Steam.	Price, Each.	Price, Strainers, Each.
No. 1	3/8 in.	1 1/2 in.	250 Gal.	\$8 00	\$0 50
No. 2	1/2 in.	3/4 in.	500 Gal.	10 00	75
No. 3	3/4 in.	1 in.	960 Gal.	15 00	1 00
No. 4	1 in.	1 1/2 in.	1300 Gal.	26 00	1 25
No. 5	1 in.	1 1/2 in.	2000 Gal.	25 00	1 50

THE “H-D”

Sizes, Brass.	Pipe Connections		Capacity per Hour.	Price, Each.	Price, Strainers Each.
	Steam	Suction and Delivery.			
No. 1	1 1/2	1 1/2	250 gals.	\$ 8 00	\$0 90
No. 2	1 1/2	3/4	500 gals.	10 00	1 00
No. 3	3/4	1	960 gals.	15 00	1 25
No. 1	1	1 1/4	1300 gals.	20 00	1 50



JET PUMPS THE "BLAKESLEE"

Designed for pumping water, buttermilk and other liquids.

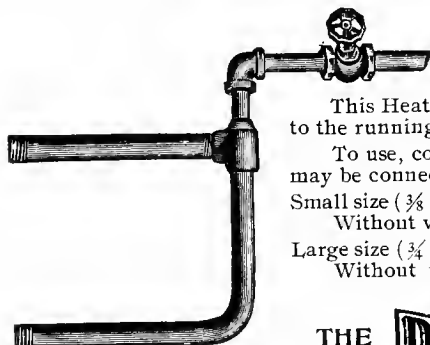
PRICES OF PUMPS WITH BRASS FITTINGS

Size of Pump	Suction Pipe	Disch'ge Pipe	Steam Pipe	Capacity per min.	Price
$\frac{3}{4}$ inch.....	$\frac{3}{4}$ inch.	$\frac{1}{2}$ inch.	$\frac{3}{8}$ inch.	8 galls.	\$ 8 00
1 ".....	1 " "	$\frac{3}{4}$ " "	$\frac{1}{2}$ " "	15 " "	10 00
$1\frac{1}{4}$ ".....	$1\frac{1}{4}$ " "	1 " "	$\frac{1}{2}$ " "	20 " "	12 00
$1\frac{1}{2}$ ".....	$1\frac{1}{2}$ " "	$1\frac{1}{4}$ " "	$\frac{3}{4}$ " "	30 " "	14 00

Brass pumps will be furnished at an additional cost of 25 per cent.



NOISELESS WATER HEATERS



THE "IDEAL"

This Heater prevents the disagreeable noise incident to the running of steam into water.

To use, connect direct to steam pipe. If necessary it may be connected to steam pipe with steam hose.

Small size ($\frac{3}{8}$ in. steam, $\frac{1}{2}$ in. outlet)....with valve, \$1 25
 Without valve 75
 Large size ($\frac{3}{4}$ in. steam, 1 in. outlet)....with valve, 1 80
 Without valve..... 1 00

THE



Made in three sizes for $\frac{1}{2}$, $\frac{3}{4}$ and 1 inch pipe.

Size H, $\frac{1}{2}$ inch, will heat 50 gallons of water at summer heat to 210° in 20 minutes with 70 lbs. of steam.

Size J, $\frac{3}{4}$ inch, will heat 50 gallons of water to same temperature in 15 minutes with 70 lbs. of steam.

Size K, 1 inch, will heat 50 gallons of water to same temperature in 12 minutes with 70 lbs. of steam.

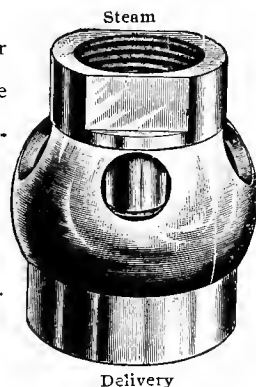
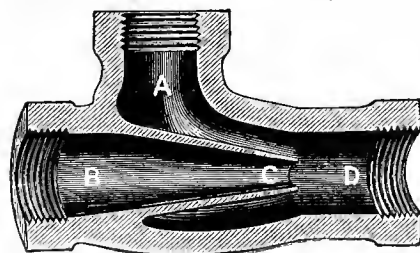
List size H, $\frac{1}{2}$ inch.....each, \$2 00

" " J, $\frac{3}{4}$ " " 2 50

" " K, 1 " " 3 00

THE McDANIEL'S

Will run hot or cold water. Every creamery should have one.



1 inch black.....\$1 00
 $1\frac{1}{4}$ " " 1 25
 $1\frac{1}{2}$ " " 1 50
 2 " " 2 00

Galvanized, extra, each, 25 cts.

THE NEW 20th CENTURY

DE LAVAL "ALPHA"

CREAM SEPARATORS

Mark Another Advance in the Process of Cream Separation.



The word De Laval has always been synonymous with progressive development. Every year has marked some new improvement or step of advancement bringing the "Alpha" De Laval machines still nearer to literal perfection. 1900 is to be no exception, bringing with it the general adaptation to the "Alpha" disc system of the new Split-Wing Tubular Shaft invention, thus effecting more even and thorough distribution of the milk in the separating bowl than heretofore accomplished. This improvement effects generally every feature of separator practicability, affording considerably greater capacity with still more exhaustive thoroughness of separation—particularly under the harder conditions of heavy cream and low temperature, while the accompanying change in the bowl construction obviates all previous possibilities of clogging.

Hand in hand with this expansion and greater utilization of the "Alpha" disc system of separation various mechanical improvements and touches of betterment have been put into practice during the past few months, including a new method of bowl locking and unlocking which precludes the springing of bowl spindles and the throwing of bowls out of balance from careless or impractical handling in such connection, and new oiling arrangements which effect a material saving of oil heretofore wasted and render literally impossible the heating or setting of machines and the splattering of oil around them.

Everything that twenty years of experience in both Europe and America has yet been able to devise or suggest has now been done toward making the **Twentieth Century "Alpha" De Laval Separators** perfect for their purpose, and great as has been the universally conceded superiority of the De Laval machines heretofore the new standard is now raised still higher.

THE FOLLOWING FEATURES ARE MORE MARKED THAN EVER BEFORE:

The "Alpha" disc machines skim cleaner than other machines possibly can under any circumstances, and the harder the skimming conditions in any respect the greater the difference becomes.

The "Alpha" disk machines skim cleaner than any other separator at any temperature, and the lower the temperature the greater the difference becomes.

The capacities of the "Alpha" disc machines are actual and even conservative, while those of other machines are materially exaggerated with anything like normal speed and good skimming.

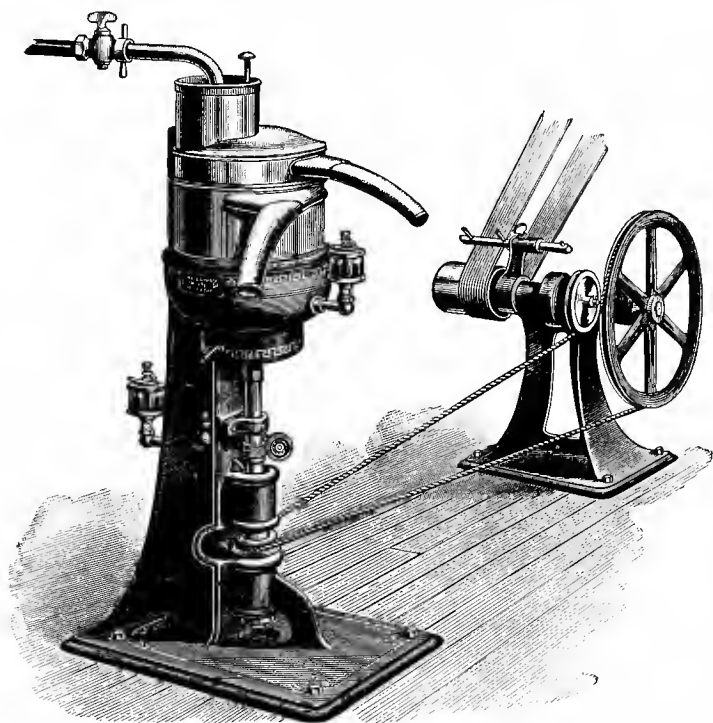
The "Alpha" disc machines require to run at but less than one-half the speed of other machines in proportion to diameter of bowl, and wear at least proportionately better.

The "Alpha" disc machines require but from one-third to one-half the power of other machines in proportion to capacity, and effect a consequent saving in fuel.

The "Alpha" disc machines produce a smoother and more evenly and completely churnable cream than other machines, and when desired a heavier cream than any other machine can successfully make.

The "Alpha" disc machines are simpler, more easily and thoroughly cleanable and better and more durably made than other machines.

In short, the "Alpha" disc machines save their cost in any creamery from once to twice over each year in what they do over and above the best that is possible with any other machines, while the saving in dairy use is proportionate to the amount of work done.

"ALPHA" ACME DE LAVAL CREAM SEPARATOR**BELT POWER****"ALPHA" OR "DISC" BOWL TYPE****SPECIFICATIONS**

Height to Milk Faucet.....	3 ft. 4 in.
" " bottom of Skimmed Milk Spout.....	2 " 2 "
" " Cream Spout.....	2 " 4 "
Shipping Weight (Bowl, Frame and Jack).....	484 lbs.
" " " " only).....	44 "
Speed of Bowl, revolutions per minute.....	5,600
Diameter of Rope Wheel on Jack.....	16½ in.
" " T. & L. Pulleys on Jack.....	5 "
Face " " ".....	3 "
Speed of Jack, revolutions per minute.....	915
Horse Power to run	¾
Weight of Jack.....	124 lbs.

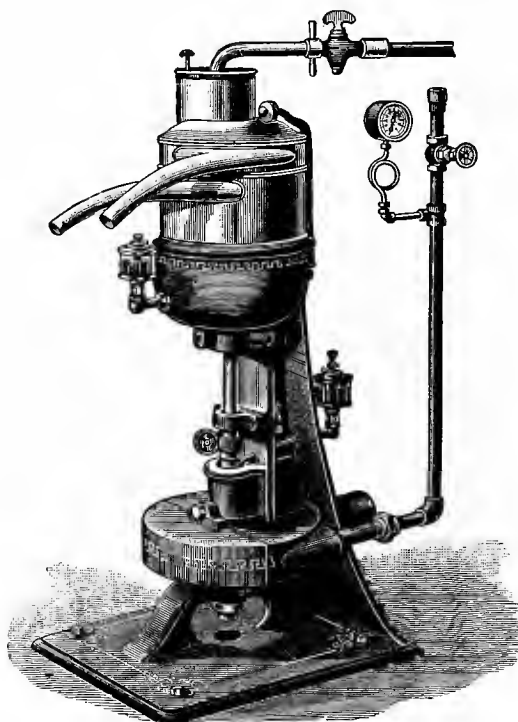
Actual Capacity, 1,750 pounds per hour

PRICE, \$350.00

The "Acme" is much the smallest, lightest and most compact of any power separator, requiring but a three-quarter power, and being capable of operation by any kind of small power.

"ALPHA" ACME DE LAVAL CREAM SEPARATOR

THE NEW "TOOTH-WHEEL" STEAM TURBINE



"ALPHA" OR "DISC" BOWL TYPE

SPECIFICATIONS

Height to Milk Faucet	3 ft. 6 in.
" " bottom of Skimmed Milk Spout.....	2 " 4 "
" " " Cream Spout.....	2 " 6 "
Shipping weight (Bowl and Frame)	426 lbs.
" " (Bowl only)	44 "
Speed of Bowl, revolutions per minute.....	5600
Actual number of lbs. of steam to run.....	25

Actual Capacity, 1,750 pounds per hour.

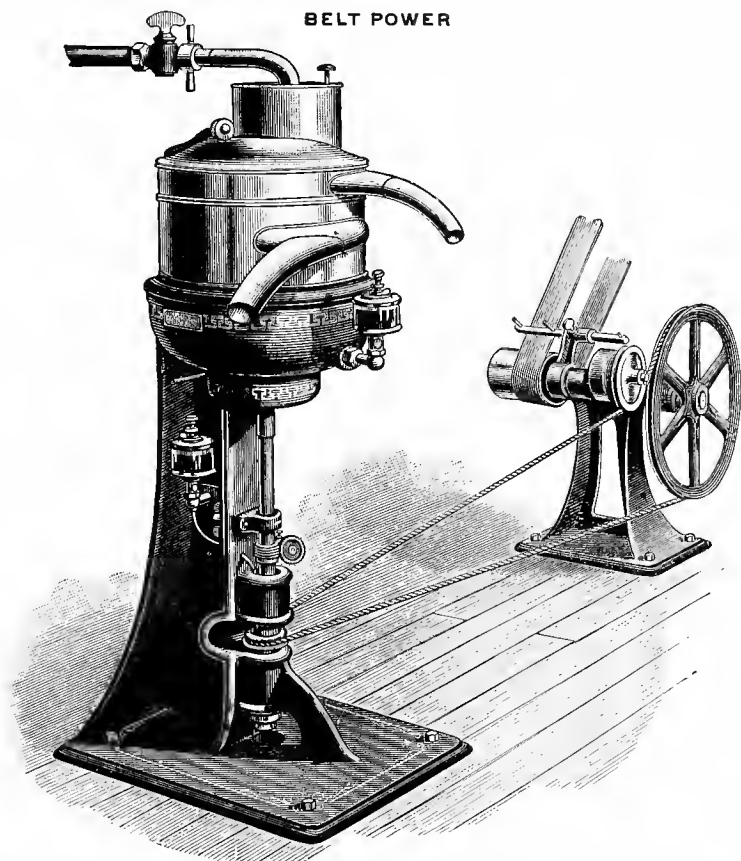
PRICE, \$375.00

An Ideal Machine for Skimming Stations.

The Turbine Separator is operated by direct steam connections with the boiler. The Acme is the simplest, most accessible, most durable, and most easily handled of any turbine separator made.

"ALPHA" No. 1, DE LAVAL CREAM SEPARATOR

BELT POWER



"ALPHA" OR "DISC" BOWL TYPE SPECIFICATIONS

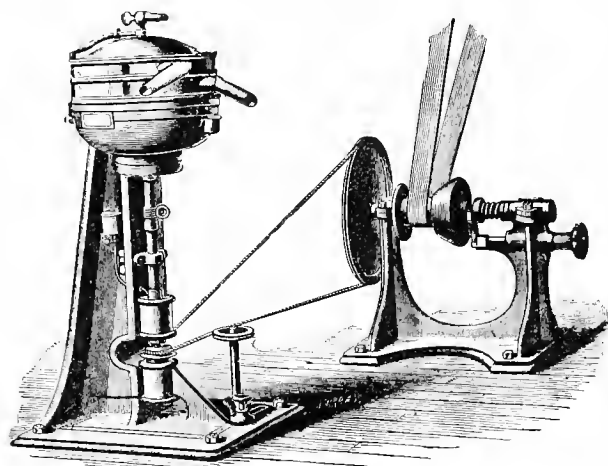
	Alpha No. 1	Alpha No. 2
Height to Milk Faucet.....	4 ft. 2 in.	4 ft. 6 in.
" " " bottom of Skimmed Milk Spout.....	2 ft. 8 in.	3 ft.
" " " Cream Spout.....	3 ft. 1 in.	3 ft. 4 in.
Shipping weight (Bowl and Frame).....	733 lbs.	758 lbs.
" " " " only.....	99 lbs.	124 lbs.
Speed of Bowl, revolutions per minute.....	5,600	5,600
Diameter of Rope Pulley on Jack.....	16½ in.	16½ in.
" " T. & L. Pulleys on Jack.....	5 in.	5 in.
Face of T. & L. Pulleys on Jack.....	3 in.	3 in.
Speed of Jack, revolutions per minute.....	915	915
Horse Power to run.....	1	1½
Weight of Jack.....	124 lbs.	124 lbs.

PRICE

"Alpha" No. 1—Belt Power, actual capacity, 3,000 lbs. per hour.....	\$500.00
" " 2 " " " " " " 4,500 " "	750.00

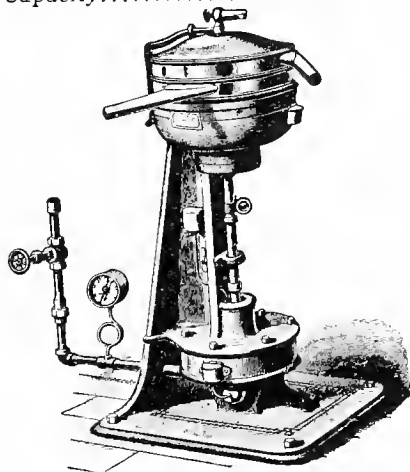
"STANDARD" DE LAVAL CREAM SEPARATORS

A cheap but good machine for small factories and large dairies, "Plain" or "Hollow" Bowl Type
BELT POWER



SPECIFICATIONS

Height to Milk Faucet.....	3 ft. 4 in.
" " Bottom of Skimmed Milk Spout.....	2 " 4 "
" " " " Cream Spout.....	2 " 6 "
Shipping Weight (Bowl, Frame and Jack).....	610 lbs.
" " " " (Bowl only).....	44 "
Speed of Bowl, revolutions per minute.....	8000
Diameter of Rope Pulley on Jack.....	16½ in.
" " T. and L. Pulley on Jack.....	5 "
Face " " " " " ".....	3 "
Speed of Jack, revolutions per minute.....	915
Horse Power to run.....	1¼
Weight of Jack.....	124 lbs.
Capacity.....	1300 lbs. per hour.
Price.....	\$200 00



"STEAM FLYER" TURBINE

SPECIFICATIONS

Height to Milk Faucet.....	3 ft. 6 in.
" " Bottom of Skimmed Milk Spout.....	2 " 6 "
" " Bottom of Cream Spout.....	2 " 8 "
Shipping Weight (Bowl and Frame).....	414 lbs.
" " (Bowl only).....	44 "
Speed of Bowl, revolutions per minute.....	8000
Number of lbs. of steam to run, exactly.....	45 lbs.
Capacity.....	1300 lbs. per hour.
Price.....	\$225 00

EXTRAS AND SUPPLIES FOR

“Alpha” Acme De Laval Belt-power Separators

Net Price List of Parts.

NAME.	No.	PRICE.
Bowl Plates or Discs for machines above 7026A:		
Top Disc	1000	\$0.60
Intermediate Disc, plain	1001	.50
Intermediate Disc, caulked	1002	.60
Bottom Disc	1003	.75
Tubular Shaft	1004	7.50
Bowl Wrench for Notched Bowl.....	1005	1.50
Locking Bolt	1007	1.35
Spindle Shield	1008	.75
Bowl Plates or Discs for machine above 120,100:		
Caulked Disc	194	.70
Plain Disc	195	.60
Bottom Disc, Notched for Bowl Ribs.....	196	.70
Tubular Shaft, attached bottom cup style.....	192	5.00
Disc Wing (and rivets).....	193	.50
Bowl Plates or Discs for machines below 36,670:		
Top Disc	165	.60
Intermediate Discs	166	.50
Tubular Shaft	163	4.00
Disc Wing (and Rivets)	164	.60
Bowl Ring	167	.20
Bowl Top Wrench	170	.75
Bottom Wrench	191	.75
Bottom Screw, complete		1.25
Bottom Screw Step	181	.75
Bottom Screw Nut	60	.50
Bottom Screw Claw	61	.25
Cream Screw, for Bowl.....	158	.15
Cream Screw Wrench	168	.15
Covers, complete set		10.00
Top (or Regulating) Cover.....	186	\$5.50
Regulating Float	522	.75
Feed Regulating Pin	75	.50
Feed Pin Ring.....	76	.05
Cream Cover	187	3.00
Skim Milk Cover	188	4.00
Cover Arm, complete	152	1.25
Cover Arm Nut, separately.....	153	.15
Cover Arm Washer, separately.....	8	.05
Cover Arm Ring, separately.....	154	.10
Faucet	155	2.50
Guard, for Bowl Spindle.....	3	.75
Screws for Spindle Guard, each.....	4	.15
Holding Down (or Lag) Screws for base of frame, each.....	5	.05
Rubber Base Cushions (and Cap), each.....	90	.25
Lower Spindle (and Point).....	177	1.50
Steel Points, per dozen.....	180	1.00
Steel Point, separately	180	.10
Spindle Pulley (and pin)	178	2.25
Taper Pin, separately.....	179	.15
Spindle Head (threaded for speed indicator).....	331	1.35
Spindle Head, old style, (not threaded).....	45	1.25
Upper Bushing, for lower spindle.....	54	1.50
Lower Bushing, for lower spindle, (bronze).....	55	1.00
Bushing Extractor, complete	62	.75

NAME.	No.	PRICE.
Lubricators:		
Sight Feed Cup, complete except arms.....	110	2.50
Front Lubricator Arm (and Tube).....	108	1.25
Back Lubricator Arm.....	230	1.25
Nut for Lubricator Arms	345	.15
Arm for High Back Lubricator (110) (and Tube) Feed- ing Top Bearing	103A	1.25
Arm for High Back Lubricator (110) (and Tube) Feed- ing Lower Spindle	103B	1.50
Cup Glass, separately.....	354	.75
Cup Cork Washer, separately	350	.15
Sight Feed Piece (and Glass), separately.....	358	.75
Small Sight Feed Glass, separately.....	250	.05
Brass Top Oil Cup, old style.....	184	1.25
Brass Side Oil Cup, old style.....	183	1.75
Side Oil Cup Feed Screw, separately.....	70	.15
Screws for fastening Brass Oil Cups.....	72	.05
Wick Wires (and Wicks), per dozen.....	68	.25
Siphon (for Bowl)	190	1.00
Speed Indicator, complete.....		2.50
Clamp	20	.25
Clamp Screw	288	.10
Wheel and Post	30	1.50
Post Screw	304	.05
Sleeve for Bowl Spindle, old style use of indicator.....	28	.75
Sleeve Screw, separately	321	.05
Top Bearing, (phosphor bronze)	171	2.00
Top Bearing, second size	172	2.00
Top Bearing, third size.....	173	2.00
Top Bearing Plate	175	1.50
Bearing Plate Screws, each.....	176	.10
Rubber Bearing Ring	174	.10
Tube Cleaner, for bowl tubes.....	109	.15
Bowl Clamp (for Wrench 392)	395	1.75
Brush for Cover Spouts	520	.15
Bowl Spanner Wrench (two handles).....	392	1.50
Top Bearing (Radial Spring style)	400	7.50
Set Screw for above Bearing	41	.10
Exchange of new Bearing complete for worn Bearing com- plete (expressage to be prepaid on return of old Bearing..		3.75

INTERMEDIATE—NEW STYLE.

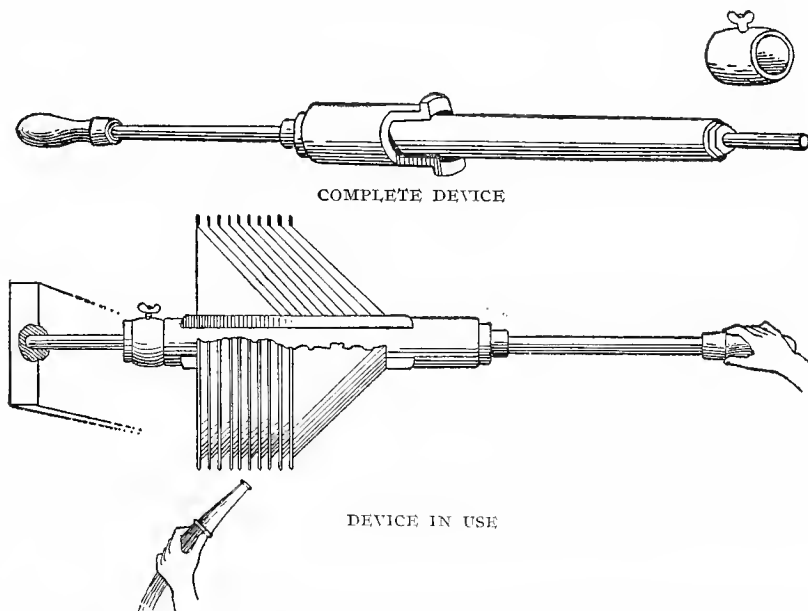
Belt-Shifter Bracket	285	1.25
Bracket Screw	280	.10
Belt-Shifter Arm (and rods)	294	1.00
Belt-Shifter Screw	288	.10
Bronze Bushing, driving fit.....	272	1.25
Bronze Bushing, loose fit	292	1.25
Set Screw, for loose bushing	479	.10
Holding-Down (or Lag) Screws, each.....	5	.05
Large Rope Wheel	277	5.00
Rope Wheel Key.....	279	.10
Loose Belt Pulley.....	282	2.50
Shaft	278	2.50
Shaft Collar	283	.75
Shaft Collar Screw, separately.....	284	.10
Spring Cotter	276	.05
Tight Belt Pulley	280	2.50
Tight Belt Pulley Screw, separately.....	281	.10
Tight Belt Pulley Screw Wrench.....	291	.25
Tightener Arm and Spindle.....	273	2.50
Tightener Pulley	274	2.00
Key for Pulley	308	.25

INTERMEDIATE—OLD STYLE.

NAME.	No.	PRICE.
Bearing Cap	297	1.25
Bearing Cap Screws, each.....	113	.15
Clutch Fork	306	1.25
Clutch Hand Nut	307	.50
Flat Belt Pulley	301	5.00
Friction Cone	303	2.00
Friction Leather	302	.75
Holding-Down (or Lag) Screws, each.....	5	.05
Large Rope Wheel	277	7.50
Rope Wheel Key	279	.10
Shaft	298	5.00
Shaft Collar	299	.50
Shaft Collar Pin.....	300	.10
Spring	305	.25
Threaded Shaft Collar, each.....	304	.75
Hook Wrench, for threaded shaft collar.....	61	.25

THE "ALPHA" SEPARATOR DISC CLEANER

Cleans the Discs in four minutes, without taking them apart, leaving them thoroughly cleaned and dry.



Cleaners sent on a week's trial when desired. If not found satisfactory money will be refunded on return of Cleaner.

PRICE \$4.00

EXTRAS AND SUPPLIES FOR “Alpha” Acme De Laval Turbine Separators.

Differing from Belt Machine.

Net Price List of Parts.

NAME.	No.	PRICE.
Pin for locking Bolt.....	1054	.05
Bottom-Screw Step	59	2.00
Set Tread Wheels	57D	1.50
Tread-Wheel Shaft, separately	58	.35
Cap Screw, for fastening frame sections and motor cap.....	113	.10
Lower Spindle (and Point).....	227	1.50
Steel Point, separately	50	.25
Lower Bushing, for steam wheel spindle.....	344	1.00
Brass Oil Cup, for Step and Tread Wheels.....	124	1.25
Pet Cock	228	.35
Steam Gauge	132	6.35
Steam Gauge Siphon, separately.....	131	1.35
Pressure Regulator, governing steam pressure.....	133	12.50
Steam Wheel	139	20.00
Steam Nozzle, for Steam Wheel.....	140	1.35
Set Screw, for Steam Nozzle.....	346	.15
Outside Steam Connections, complete set.....	130	4.00
Exhaust Connection	142	1.00
Top Bearing (Spring style), complete.....	229	4.00
Repair Size, No. 2 Top Bearing.....	229	4.00
Repair Size, No. 3 Top Bearing.....	229	4.00
Bearing Set Screws, each.....	225	.15
Top Bearing Plate, Spring style.....	222	1.25
Bearing Plate Screws, each.....	226	.10
Tube Cleaner, for Bowl Tubes	169	.15
Wrench, large one (for both styles machine).....	129	1.00
Wrench, small one (for old style machine).....	125	.50
Claw Wrench (for Motor Screws).....	406	.35

Parts for 1895 Steam-Flyer Acme Turbine Machines, differing from the Steam-Wheel Turbine Parts.

NAME.	No.	PRICE
Flyer (including Spindle)	117	\$17.50
Flyer Spindle, separately.....	134	1.25
Flyer Pin, separately.....	118	.10
Flyer Spindle Bushing	135	3.00
Spindle Head	45	1.25
Steam Nozzle	126	3.00
Set Screw (and Nut), for Steam Nozzle.....	127	.25
Steam Connection Sleeve	128	4.00
Step Wheel (and Shaft).....	120	13.00
Step Wheel Shaft Bushings, each.....	122	1.00
Set Screw for Shaft Bushings	123	.10
Top Bearing, Rubber Ring Style.....	171	2.00
Top Bearing, second size.....	172	2.00
Top Bearing, third size	173	2.00
Top Bearing Plate	175	1.50
Bearing Plate Screws, each	176	.10
Rubber Bearing Ring.....	174	.10

EXTRAS AND SUPPLIES FOR

“Alpha” No. 1 De Laval Belt-power Separators

Net Price List of Parts.

NAME.	No.	PRICE.
Belt-Tightener (on frame, old style), complete.....		\$2.50
Pulley and Spindle.....	63	1.50
Bracket	64	.75
Hand Nut	65	.35
Frame Stud	66	.25
Leather Washer	67	.10
Bottom-Screw, complete		4.00
Bottom-Screw Step	59	2.00
Bottom-Screw Nut	60	.50
Bottom-Screw Wrench	61	.25
Set Tread Wheels and Shaft	360	1.50
Tread-Wheel Shaft, separately	58	.25
Bowl Plates or Discs, 2,500 lbs. capacity style: (note carefully various styles)		
Top Disc, plain for stripped disc bowl.....	362	.75
Intermediate Disc	410	.60
Intermediate Disc, with strips calked on.....	415	.60
Intermediate Disc, plain.....	416	.60
Intermediate Discs, with long strips, each.....	363	.60
Intermediate Discs, with short stripes, each.....	412	.60
Bottom Disc, plain, for calked or indented discs.....	401	.75
Bottom Disc (shaft-attached-cup style of bowl) with long strips	375	.75
Bottom Disc (ditto style), with short strips.....	413	.75
Bottom Enclosed Disc (old style shaft bowl), with strips.....	364	1.50
Disc Strips, long size, each.....	365	.05
Disc Strips, short size, each.....	414	.05
Vertical Ribs, for bowl sides	366	.25
Tubular Shaft, 3,000 lbs. capacity.....	1062	12.50
Tubular Shaft (with attached bottom cup).....	374	7.50
Tubular Shaft Disc Wing (and Rivets), for No. 374 Shaft.....	347	.75
Tubular Shaft (without attached bottom cup).....	311	5.00
Tubular Shaft Disc Wing (and Rivets), for No. 311 Shaft.....	312	.75
Clamp for Tubular Shaft.....	390	.50
Top Disc, with indentations.....	313	.75
Intermediate Discs, with indentations, each.....	314	.60
Bottom Enclosed Disc, indented disc style of bowl with outside ribs	367	1.50
Bottom Enclosed Disc, indented disc style of bowl without outside ribs.....	325	1.50
Bowl Plates or Discs, 3,000 lbs. capacity:		
Top Disc	1058	.75
Intermediate Disc, plain	1050	.60
Intermediate Disc, calked	1060	.75
Bottom Disc	1061	1.00
Bowl Plates or Discs, 2,000 lbs. capacity style: (See foot note on Increasing Capacity).		
Top Disc	21	.60
Intermediate Discs, each.....	22	.50
Tubular Shaft	19	7.50
Disc Wing (with rivets).....	20	.75
Bowl Wrench	1052	1.75
Bowl Locking Bolt	1053	1.05
Bowl Locking Pin	1054	.10

NAME.	NO.	PRICE
Bowl Wrenches:		
Spanner, or Handle Wrench, new style.....	339	2.00
Clamp, or Bottom Wrench, new style.....	337	1.75
Plain Spanner, top one.....	26	1.50
Plain Top Spanner, for notched bowl-top.....	343	1.50
Plain Spanner, bottom one.....	319	1.50
Cream-Screw, for bowl.....	13	.25
Cream-Screw Wrench.....	24	.25
Covers, complete set.....		15.00
Top (or Regulating) Cover (3,000 lbs. capacity).....	1066	5.00
Top (or Regulating) Cover (2,500 lbs. capacity).....	74	5.00
Top (or Regulating) Cover (2,000 lbs. capacity).....	353	5.00
Regulating Float.....	73	.75
Cover Regulating Pin.....	75	.50
Cover Pin Ring.....	76	.05
Cream-Cover.....	77	3.50
Skim-Milk Cover.....	78	7.50
Cover Arm, complete.....	6	1.50
Cover Arm Nut, separately.....	7	.15
Cover Arm Washer, separately.....	8	.05
Cover Arm Ring.....	9	.10
Faucet.....	10	4.00
Guard, for bowl spindle.....	3	.75
Screws, for spindle guard, each.....	4	.15
Holding-Down (or Lag) Screws, for base of frame, each.....	5	.05
Rubber Base Cushions (and Cap), each.....	90	.25
Lower Spindle (and point).....	46	1.50
Steel Point separately.....	56	.25
Spindle Head (threaded for speed-indicator).....	331	1.35
Spindle Head (plain, old style).....	45	1.25
Spindle Pulley (and pin).....	178	2.25
Pulley Pin, separately.....	179	.15
Ratchet Pulley, complete, old style.....	47	3.50
Ratchet Pulley Pin.....	51	.15
Ratchet Pulley Spring.....	52	.10
Upper Bushing (Ph. Bronze).....	54	1.50
Lower Bushing (Ph. Bronze).....	55	1.00
Bushing Extractor, complete.....	62	.75
Lubricators (various styles):		
Sight-Feed Cup, complete, except arm.....	110	2.50
Front Lubricator Arm (and tube).....	108	1.25
Side Lubricator Arm (and tube).....	109	1.25
Nut for Lubricator Arms.....	345	.15
Cup (110) Glass, separately.....	354	.75
Cup Cork-Washer (104 and 110 cups), separately.....	356	.15
Sight-Feed Piece (and glass), (110 cup), separately.....	358	.75
Small Sight-Feed Glass (104 and 110 cups), separately..	359	.05
Oil Catcher.....	1048	1.00
Lubricator Cup, complete, for high back brackets.....	104	2.50
High Back Bracket (and tube) feeding top bearing.....	103A	1.25
High Back Bracket (and tube) feeding lower spindle.....	103B	1.50
Cup (104) Glass, separately.....	355	.75
Sight-Feed Piece (and glass), (104 cup), separately.....	357	.75
Brass Top Oil-Cup, old style.....	71	1.50
Brass Side Oil-Cup.....	60	1.75
Side Oil-Cup Feed Screw, separately.....	70	.15
Oil-Cup Fastening Screws, each.....	72	.05
Wick Wires (and Wicks) per doz.....	68	.25
Rubber Rings:		
Bowl Ring, small size.....	23S	.25
Bowl Ring, large size.....	23L	.25
Bearing Ring, for sectional bearing.....	89	.35
Bearing Ring (for Nos. 31 and 85 bearings).....	42	.35
Bearing Ring (for No. 80 bearing).....	81	.25

NAME.	No.	PRICE.
Siphon, for bowl	27	1.00
Speed-Indicator, complete		2.00
Clamp	29	.25
Clamp Screw	288	.10
Wheel and Post	30	1.65
Post Screw	30D	.05
Spindle Shield	1057	.75
Sleeve (for bowl spindle), old style, use of indicator.....	28	.75
Sleeve Screw, separately	321	.05
Top Bearing, radial spring, complete with plate.....	376	15.00
Top Bearing, plate separately.....	382	1.25
Top Bearing, No. 2 repair size.....	376-2	15.00
Top Bearing, No. 3 repair size.....	376-3	15.00
Sectional Bearing (with ring).....	88	5.00
Sectional Bearing, second size (with ring).....	88-No. 2	5.00
Sectional Bearing, third size (with ring).....	88-No. 3	5.00
Bearing Plate (31, 85 and 88 bearings).....	43	1.35
Bearing Plate Screws (all bearings), each.....	44	.10
Bearing Disc (31, 85 and 88 bearings).....	40	1.00
Bearing Disc Screws, for above, each.....	41	.10
Solid Bronze Bearing, large spindle.....	85	4.00
Solid Bronze Bearing, second size.....	86	4.00
Solid Bronze Bearing, third size.....	87	4.00
Solid Bronze Bearing, small spindle.....	80	4.00
Small Solid Bronze Bearing, second size.....	80-No. 2	4.00
Small Solid Bronze Bearing, third size.....	80-No. 3	4.00
Bearing Plate (No. 80 bearing).....	83	1.25
Bearing Disc (No. 80 bearing plate).....	82	1.00
Bearing Disc Screws, for above, each.....	691	.10
Ball Bearing, complete	31	7.50
Steel Balls, separately, each.....	35	.05
Tube Cleaner, for Bowl Tubes.....	25	.25
Tread Wheels, each	57	.75
Tread Wheels, shaft	58	.35

INTERMEDIATE—NEW STYLE.

Belt-Shifter Bracket	285	1.25
Bracket Screw	286	.10
Belt-Shifter Arm (and rods).....	294	1.00
Belt-Shifter Screw	288	.10
Bronze Bushing, driving fit.....	272	1.25
Bronze Bushing, loose fit	292	1.25
Set Screw, for loose bushing.....	479	.10
Holding-Down (or Lag) Screws, each.....	5	.05
Large Rope Wheel.....	277	5.00
Rope Wheel Key.....	279	.10
Loose Belt Pulley	282	2.50
Shaft	278	2.50
Shaft Collar	283	.75
Shaft Collar Screw, separately.....	284	.10
Spring Cotter	276	.05
Tight Belt Pulley	280	2.50
Tight Belt Pulley Screw, separately.....	281	.10
Tight Belt Pulley Screw Wrench.....	291	.25
Tightener Arm and Spindle.....	273	2.50
Tightener Pulley	274	2.00
Key for Pulley	308	.25

INTERMEDIATE—OLD STYLE.

NAME.	No.	PRICE.
Bearing Cap	297	\$1.25
Bearing Cap Screws, each.....	113	.15
Clutch Fork	306	1.25
Clutch Hand Nut	307	.50
Flat Belt Pulley	301	5.00
Friction Cone	303	2.00
Friction Leather	302	.75
Holding-Down (or Lag) Screws, each.....	5	.05
Large Rope Wheel	277	7.50
Rope Wheel Key	279	.10
Shaft	298	5.00
Shaft Collar	299	.50
Shaft Collar Pin.....	300	.10
Spring	305	.25
Threaded Shaft Collar, each.....	304	.75
Hook Wrench, for threaded shaft collar.....	61	.25

Alpha No. 2 Belt.

Parts Differing from Alpha No. 1 Belt Only.

NAME.	No.	PRICE.
Brass Top Oil-Cup, old style.....	97	\$1.50
Faucet	92	5.00
Ph. Bronze Top Bearing (1801 and 1802 machines).....	99	4.00
Second (or Repair) Size of such bearing.....	105	4.00
Third (or Repair) Size of such bearing.....	106	4.00
Bearing Plate, for 99 bearing only.....	101	1.35
Bearing Disc, for 99 bearing only.....	102	1.00
Bearing Ring, for 99 bearing only.....	100	.30
Top (or Regulating Cover (4,000 lbs. capacity).....	1065	5.00
Top (or Regulating) Cover (4,000 lbs. capacity).....	98	5.00
Top (or Regulating) Cover (3,500 lbs. capacity).....	361	5.00
Tubular Shaft, 4,000 lbs. capacity.....	1064	15.00
Tubular Shaft, with attached bottom cup.....	425	10.00
Disc Wing (and Rivets).....	269	.75
Vertical Ribs on Inside of Bowl.....	426	.50
Tubular Shaft, 4,000 lbs. capacity bowl.....	315	7.50
Disc Wing (and rivets), for No. 315 Shaft	316	.75
Tubular Shaft, 3,500 lbs. capacity bowl	95	10.00
Disc Wing (and rivets)	96	.75

EXTRAS AND SUPPLIES FOR

“Alpha” No. 1 De Laval Turbine Separators.

Differing from Belt Machine.

Net Price List of Parts.

NAME.	No.	PRICE.
Bottom Disc, plain, (for shaft-attached-cup style of bowl, with indented discs)	401	\$.75
Clamp for lifting out Bowl.....	399	.50
Brass Oil Cup, for motor parts.....	124	.25
Oil Siphon for Bottom Screw.....	1049	.75
Steam Connections, outside piping, complete set.....	130	4.00
Steam Gauge (and Siphon).....	132	6.35
Steam Gauge Siphon, separately	131	1.35
Pressure Regulator, governing steam pressure.....	133	12.50
Exhaust Connection	142	1.00

Steam-Wheel Motor Parts Differing from Steam-Flyer Motor Parts.

NAME.	No.	PRICE
Steam-Wheel (with spindle, etc.) complete.....	385	\$21.50
Steam-Wheel, separately	386	20.00
Steam-Wheel Sleeve Bushing	387	1.00
Steam-Wheel Collar	388	.50
Steam-Wheel Collar Hook Wrench.....	411	.35
Steam-Wheel Set Screw.....	389	.10
Steam-Wheel Spindle (and point).....	390	1.50
Steel Point, separately	56	.25
Spindle Head	331	1.35
Upper Bushing	54	1.50
Lower Bushing	344	1.00
Bushing Extractor, complete	62	.75
Bottom-Screw, complete, including tread-wheels.....		4.00
Bottom Screw Step	348	2.00
Bottom-Screw Nut	60	.50
Bottom-Screw Hook Wrench	61	.25
Set Tread Wheels and Shaft.....	351	1.50
Tread-Wheel Shaft, separately.....	359	.35
Steam-Nozzle	140	1.35
Steam-Nozzle Set Screw	346	.15
Cap Screw, for Motor Casing, each.....	113	.10
Claw Wrench, for cap screws	406	.35

Steam-Flyer Motor Parts Differing from Steam-Wheel Motor Parts.

NAME.	No.	PRICE.
Steam-Flyer (including spindle).....	117	\$17.50
Flyer Spindle, separately	134	1.25
Flyer Pin, separately.....	118	.10
Flyer Spindle Bushing	135	3.00
Spindle Head (threaded for speed indicator).....	331	1.35
Spindle Head (without speed indicator threads).....	45	1.25
Flyer (including spindle), old style, short spindle.....	149	17.50
Flyer Spindle, short style	115	1.25
Flyer Spindle Bushing, short style.....	116	3.00
Spindle Head (for No. 115 short spindle).....	114	1.25
Step Wheel (and Shaft).....	120	13.00
Step Wheel Shaft Bushings, each.....	122	1.00
Set Screw for Shaft Bushings.....	123	.10
Steam Nozzle	126	3.00
Set Screw (and nut for Steam Nozzle).....	127	.25
Steam Connection Sleeve	128	4.00
Cap Screws, for fastening frame sections.....	113	.10
Wrench, large one	129	1.00
Wrench, small one	125	.50

Alpha No. 2 Turbine.

(Parts Differing from Alpha No. 1 Turbine Only.)

NAME.	No.	PRICE.
Brass Top Oil Cup, old style.....	97	\$1.50
Faucet	92	5.00
Ph. Bronze Top Bearing (1891 and 1892 machines).....	99	4.00
Second (or Repair) Size of such bearing.....	105	4.00
Third (or Repair) Size of such bearing.....	106	4.00
Bearing Plate, for 99 bearing only.....	101	1.38
Bearing Disc, for 99 bearing only.....	102	1.00
Bearing Ring, for 99 bearing only.....	100	.30
Top (or Regulating) Cover (4,000 lbs. capacity).....	1065	5.60
Tubular Shaft, 4,000 lbs. capacity.....	1064	15.00
Top (or Regulating) Cover, (4,000 lbs. capacity).....	98	5.00
Top (or Regulating) Cover, (3,500 lbs. capacity).....	361	5.00
Tubular Shaft, 4,000 lbs. capacity bowl.....	315	7.50
Disc Wing (and Rivets).....	316	.75
Tubular Shaft, 3,500 lbs. capacity bowl.....	95	10.00
Disc Wing (and Rivets).....	96	.75

EXTRAS AND SUPPLIES FOR

"STANDARD" DE LAVAL BELT-POWER SEPARATORS

NET PRICE LIST OF PARTS

Name.	No.	Price.
Spindle Guard.....	3	\$.75
Spindle Guard Screws (each).....	4	.15
Lag Screws (each).....	5	.05
Cover Arm (complete).....	231	1.25
" Nut.....	232	.10
" Ring.....	154	.10
Faucet.....	233	1.75
Skimmed Milk Screw.....	236	.25
Milk Tube Cleaner.....	260	.20
Bowl Siphon.....	27	1.00
Speed Indicator Sleeve.....	28	.85
" " Clamp and Screw.....	29	.30
" " Dial and Post.....	30	1.35
Top Bearing, No. 1 (regular size).....	171	1.25
" No. 2 (reduced size).....	172	1.25
" No. 3 (further reduced size).....	173	1.25
" Ring (per doz.).....	174	1.00
Wicks and Wires (per doz.).....	68	.25
Side Oil Cup.....	69	1.75
Top " ".....	254	1.25
Covers (complete set).....	—	10.00
Top Cover.....	256	2.00
Cream Cover.....	257	4.00
Skimmed Milk Cover.....	258	4.00
Lower Spindle "A" (wooden cup style) and Point.....	242	1.50
Wooden Cups (for "A" Spindle) (per doz.).....	243	.75
Lower Spindle "B" (iron cup style) and Point.....	244	1.50
" "C" (screw style) " ".....	245	1.75
Spindle Pulley and Pin (for "A" and "B" spindles).....	178	2.25
" Pin (separately).....	179	.15
" (for "C" spindle).....	246	2.25
" Wrench for "C" Spindle.....	247	.50
Upper Bushing.....	54	.75
Lower " ".....	55	.50
Steel Points (per doz.).....	180	1.00
Bottom Screw.....	261	.75
" Lock Nut.....	182	.50
" Hook Wrench.....	61	.25
Bushing Extractor (complete).....	62	.75
Belt Tightener (complete).....	—	2.50
INTERMEDIATE—OLD STYLE		
Lag Screws (each).....	5	.10
Bearing Cap.....	297	1.00
" Screw (separately).....	113	.10
Shaft.....	298	3.00
Shaft Collar.....	299	.50
" Pin (separately).....	300	.10
Large Rope Wheel.....	277	7.50
" Key.....	279	.10
Flat Belt Pulley.....	301	5.00
Friction Leather.....	302	.75
" Cone.....	303	2.00
Threaded Shaft Collar.....	304	.50
Spring.....	305	.25
Clutch Fork.....	306	1.25
" Hand Nut.....	307	.50

When ordering Bearings and Bearing Rings please advise size or number of Bearing or Ring wanted, also give size of Spindle and number of times Spindle has been turned down.

EXTRAS AND SUPPLIES FOR "STANDARD" DE LAVAL STEAM TURBINE SEPARATORS

NET PRICE LIST OF PARTS

Name.	No.	Price.
Cap Screws (for fastening frame sections together), each.....	113	\$.10
Covers, complete set.....	—	10.00
Top Cover.....	256	2.00
Cream Cover.....	257	4.00
Skimmed-milk Cover.....	258	4.00
Cover Arm, complete.....	231	1.25
Cover Arm Nut, separately.....	232	.10
Cover Arm Ring.....	154	.10
Faucet.....	233	1.75
Flyer (including Spindle), long spindle style.....	117	17.50
Long Flyer Spindle, separately.....	134	1.25
Flyer Pin, separately.....	118	.10
Long Flyer Spindle Bushing.....	135	3.00
Long Spindle Head.....	45	1.25
Flyer (including Spindle), old style, short spindle.....	149	17.50
Flyer Spindle, short style.....	115	1.25
Flyer Spindle Bushing, short style.....	116	3.00
Spindle Head (for No. 115 short spindle).....	114	1.25
Guard, for bowl spindle.....	3	.75
Screws, for spindle guard, each.....	4	.15
Holding-Down (or Lag) Screws, for base of frame, each.....	5	.05
Oil Cup, top one.....	254	1.25
Oil Cup, side one.....	69	1.75
Oil Cup, for step-wheel.....	124	1.25
Screws for Oil Cups, each.....	72	.05
Wick Wires (and Wicks), per doz.....	68	.25
Siphon, for bowl.....	27	1.00
Skimmed-milk Screw.....	236	.25
Skimmed-milk Tube Cleaner.....	260	.20
Speed Indicator, complete.....	—	2.50
Clamp.....	29	.25
Clamp Screw.....	288	.10
Wheel and Post.....	30	1.50
Post Screw.....	30d	.05
Sleeve (for bowl spindle).....	28	.75
Sleeve Screw, separately.....	321	.05
Steam Gauge (and Siphon).....	132	6.35
Steam Gauge Siphon, separately.....	131	1.35
Pressure Regulator, governing steam pressure.....	133	12.50
Steam Nozzle.....	126	3.00
Set Screw (and nut) for Steam Nozzle.....	127	.25
Steam Connection Sleeve.....	128	4.00
Outside Steam Connections, complete set.....	130	4.00
Exhaust Connection.....	142	1.00
Step-wheel and Shaft (small shaft).....	120 and 267	13.00
Step-wheel and Shaft (large shaft).....	120 and 121	13.00
Step-wheel Shaft Bushings (for shaft 267), each.....	268	1.00
Step-wheel Shaft Bushings (for shaft 121), each.....	122	1.00
Set Screw for Bushings.....	123	.15
Top Bearing, No. 1 (regular size).....	171	1.25
Top Bearing, No. 2 (reduced size).....	172	1.25
Top Bearing No. 3 (further reduced size).....	173	1.25
Top Bearing Ring, per doz.....	174	1.00
Wrench, large one.....	129	1.00
Wrench, small one.....	125	.50

When ordering Bearings and Bearing Rings please advise size or number of Bearing or Ring wanted, also give size of Spindle and number of times Spindle has been turned down.

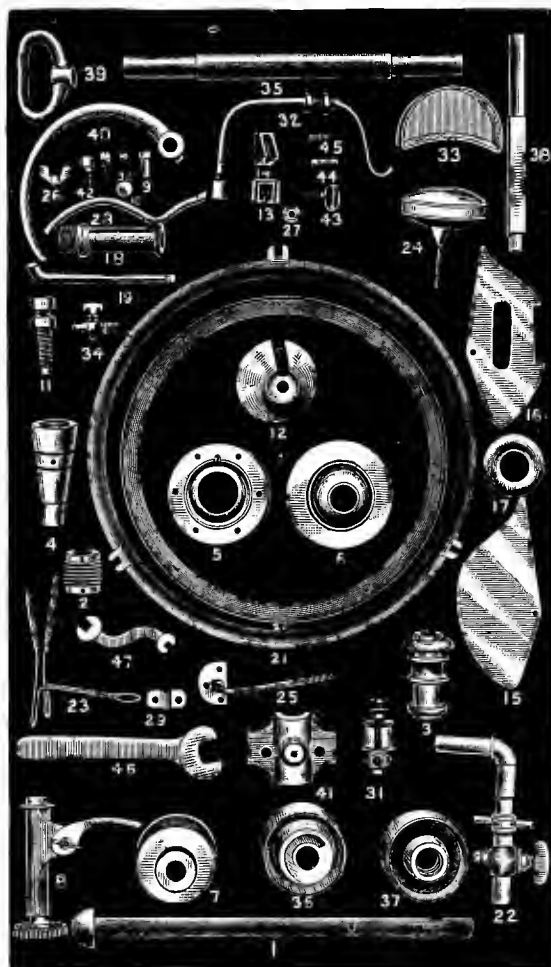
EXTRAS FOR "REID'S IMPROVED" DANISH-WESTON SEPARATOR

NET PRICE LIST OF PARTS

1	Base.....				
2	Guard.....				
3	Cylinder.....				
4	Iron Cover.....	\$4 00			
5	" Arm with Yoke Plates.....	5 25			
6	B. H. Wing Bolt for Arm.....	25	} Iron Cover, complete.....	\$10 00	
7	H. H. Bolt for Arm.....	25			
8	Milk Tube Stop.....	25			
9	Bottom Cream Cover.....	3 50			
10	Top " " ".....	1 50	} Cream Cover, complete...	5 10	
11	Small " " Cap.....	10			
12	B. H. Cover, Screw and Nut, each.....				05
13	Faucet.....				2 00
14	Skimmed Milk Tube.....				3 75
15	" " " Bend.....				75
16	Milk Point.....				30
17	" Tube, Adjusting Nut.....				1 50
18	Screw for Milk Tube.....				50
19	Spindle.....				7 00
20	" Pulley.....	\$1 40	} Spindle Pulley, complete	1 70	
21	" " Set Screw, each.....	10			
22	" Ball.....				10
23	Oil Catcher.....				70
24	Upper Bearing.....	\$4 50	} Upper Bearing, complete	5 50	
25	" " Nut.....	1 00			
26	Lower Bearing.....	1 90	} Lower Bearing, complete	2 50	
27	" " Plug.....	60			
28	Base Plug.....				50
29	" " Nut.....				50
30	Oil Cup.....	\$0 60	} Oil Cup and Pipes.....	1 25	
31	" " Cover.....	20			
32	Short Oil Cup Nipple.....	07			
33	Long " " ".....	12			
34	Oil Cup Tee.....	06			
35	" " Plug.....	20			
36	Cone Nut.....				7 50
37	" " Rubber Ring, per doz.....				1 00
38	" " Wrench.....				50
39	" " Lever.....				50
40	Half Spanner Hexagon Wrench.....				50
41	S. Wrench.....				50
42	Tee " " ".....				75
43	Upper Bearing Nut Wrench.....				50
44	Speed Indicator Frame.....	\$0 85	} Speed Indicator, complete	1 50	
45	" " Wheel.....	50			
46	" " Shaft.....	10			
47	" " Spring.....	05			
48	" " Staple.....				
	Belt Tightener, complete.....	\$4 00	59	Intermediate Shaft.....	1 50
49	" " Bracket.....	75	60	" Shaft Collar.....	50
50	" " Stud.....	20	61	" Driving Pulley.....	3 65
51	" " Nut.....	40	62	" Tight ".....	1 60
52	" " Pulley.....	1 80	63	" Loose ".....	1 60
53	" " Spindle.....	20	64	" Shifter Bar.....	50
54	Belt Tightener Pulley Spindle Ball.....	— 65	65	" " " Stop.....	10
55	Belt Tightener Oil Pipe.....	25	66	" " " Set Screw.....	05
56	Large Tube Cleaner.....	30	67	" Shifter Bracket.....	1 10
57	Small " " ".....	25	68	" " " Bolt.....	10
58	Intermediate Frame.....	—	69	Belt Tightener Plate and Stud.....	60

EXTRAS FOR "JUMBO" SEPARATOR

PRICE LIST OF PARTS.



Jack, complete.....	\$50 00
No. 1, Spindle.....	15 00
3, Upper Box.....	7 00
4, Lower Box.....	5 00
5, Upper Box Flange, plain.....	2 00
5, B—Upper Box Screw Flange.....	2 50
6, Upper Box Oil Cover.....	50
7, Flange Pulley, old style.....	2 50
7, B—Flange Pulley, new style.....	3 50
7, C—Flange Pulley Bushing, new style.....	75
7, D—Spindle Pulley Wrench, new style, set.....	70
8, Speed Indicator, machine complete.....	5 00
9, Steel Point.....	20
10, Steel Balls.....	15
10, B—Steel Bushing.....	20
11, Adjusting Screw, complete.....	1 50
11, B—Adjusting Screw only.....	1 00
11, C—Adjusting Screw Lock Nut only.....	50
12, Worm Bowl Box, old style.....	5 00
12, B—Cone Bowl Box.....	12 00
13, Cream Gate.....	2 00
14, Milk Gate.....	2 00
15, Wing.....	1 50
15, B—Wing Brace.....	50
17, Rubber Ring.....	50
18, Feed Cup, in Bowl.....	2 50
19, Feed Tube.....	50
20, Lower Cover Ring.....	2 25
20, B—Middle Cover Ring.....	2 25
21, Upper Cover Ring.....	3 25
22, Feed Cock or Faucet.....	1 25
23, Feed Cock Bracket.....	50
24, Feed Cock Float.....	75
25, Cover Lugs, per full set.....	1 50
26, Cover Lug Thumb Nut.....	15
27, Cover Lug Washer.....	05
28, Oil Drip.....	35
29, Oil Drip Clamp.....	15
30, Machine Screw.....	05
31, Sight Feed Oil Cup.....	1 25
32, Oil Tube.....	1 50
33, Drip Cup.....	50
34, Drip Cock.....	60
35, Jack Shaft.....	1 00
36, Jack Tight Pulley.....	3 00
37, Jack Loose Pulley.....	4 00
37, B—Jack Flange Pulley.....	8 00
38, Jack Shifter, complete.....	2 50
39, Jack Shifter Handle.....	75

INDICATOR EXTRAS.

OLD STYLE.

No. 70, Worm.....	\$0 75
71, Worm Gear.....	1 00
72, Shaft and Dial.....	1 00
73, Bracket.....	1 25
74, Lug.....	50

INDICATOR EXTRAS.

NEW STYLE.

75, Worm Gear.....	\$1 25
76, Shaft.....	50
77, Dial.....	75
78, Bracket.....	1 00
79, Frame.....	1 50
Balancing Bowl.....	5 00
Retinining Bowl.....	4 00
Screw Driver.....	50
Tube Cleaner.....	25
Oil Can.....	35

No. 40, Jack Shifter Prongs.....	\$0 75
41, Jack Stand Cap.....	1 00
42, Jack Cup Screw.....	10
43, Jack Thumb Screw.....	10
44, Jack Clutch Pin.....	05
45, Jack Clutch Spring.....	15
46, Single Open End Wrench.....	20
47, Double Open End Wrench.....	40
48, Feed Pan on Covers.....	2 50
49, Upper Cover Ring, No. 1 or No. 2.....	3 00
50, Upper Cover Ring, No. 3.....	2 00
51, Spanner Wrench, each.....	35
52, Upper Box Wrench.....	1 50
53, Spindle Collar.....	2 50
54, Notched Feed Regulator.....	1 00
No. 55, Cleaning Screw.....	\$0 15
56, Milk Screw.....	50
57, Cream Screw.....	50
58, Cone Screw L. H.....	35
59, Glass for Oilier on Jack.....	20
60, Hoop for Bowl.....	1 50
61, Feed Tube and Brace, old style.....	1 00
62, Skimmed-Milk Tube.....	1 50
63, Lock Nut.....	25
64, Feed Pan Cushion.....	15
65, Jack Stands.....	10 00
66, Top Covers with Rings.....	4 50
67, Middle Covers.....	4 00
68, Lower Covers.....	4 00
69, Base or Foundation Plate.....	7 50

We make a charge for use of "Jumbo" Loaning Bowls.

EXTRAS FOR "OLD STYLE"
DANISH=WESTON CREAM SEPARATOR
NET PRICE LIST OF PARTS

FIFTEEN-INCH MACHINE

No.	Price.	No.	Price.
1 Cream tube complete.....	\$3 50	13 Oil pipe and cup.....	\$1 25
2 " " bend.....	60	14 Spindle Pulley.....	1 40
3 Milk tube.....	3 75	15 Upper bearing.....	5 50
4 " " bend.....	75	16 Lower ".....	2 50
5 Cream point.....	30	17 Milk cock, with stand.....	4 00
5½ Milk ".....	30	18 Speed indicator.....	6 50
6 Feed pipe, complete.....	1 80	19 " " bolt.....	50
7 Screw for milk pipe.....	1 50	20 Spindle nut.....	2 00
8 Milk pipe holder.....	2 00	21 Spindle.....	7 00
9 Screw for feed pipe.....	50	22 T wrench.....	75
10 Plug for oiler.....	50	23 Hexagon wrench.....	1 20
11 Nuts for cream tubes.....	75	24 Feed pipe only.....	75
12 Oil catcher.....	70	25 Oil cup glasses, each.....	40

EXTRAS FOR "BARBER'S OVERFLOW"
DANISH=WESTON CREAM SEPARATOR
NET PRICE LIST OF PARTS

No.	Price.	No.	Price.
1 Faucet.....	\$1 75	17 Nut for upper bearing.....	\$1 00
2 " arm.....	1 50	19 Lower bushing for spindle.....	2 50
4 Cream cover.....	5 00	20 Ball for lower bushing.....	10
5 Milk cover.....	5 00	21 Steel plate for lower bushing...	15
7 Speed indicator clamp and screw	35	22 Steel ring " " ".....	25
8 " " and post.....	1 35	24 Pulley for spindle.....	1 50
10 Top ring for frame.....	1 50	26 Cream screw.....	50
11 Milk distributor, brass.....	4 00	27 Wrench for cream screw.....	25
12 " " wrench.....	50	29 Oil pipe and cup.....	1 25
14 Spindle for bowl.....	7 50	30 Rubber packing ring.....	25
16 Upper bearing for spindle.....	4 50		

EXTRAS FOR
DANISH=WESTON INTERMEDIATES (Any Style)
NET PRICE LIST OF PARTS

	Price.
22 inch pulley.....	\$ 1 35
8 " " per set.....	3 20
Shifters.....	3 10
Hangers, per set.....	5 10
Foundation bolts.....	3 75

In ordering intermediate extras for Danish-Weston style machine, state whether for "Old Style," "Barber Overflow" or "Reid's Improved" machine.

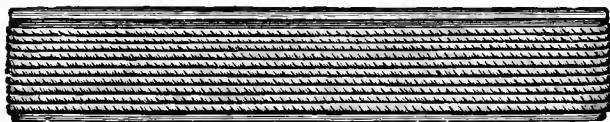
We can also furnish complete Extras for the following Separators, all styles

Sharples Imperial Russian
 " Standard Russian
 " Imperial Belt
 " Standard Belt

Sharples Motor
 Empire No. 10
 Empire No. 25
 United States

SEPARATOR BELTS

DE LAVAL AND SHARPLES ROPE BELTS



These are thoroughly well made and are guaranteed to outlast any rope belt made. Stock lengths, 14 ft., 17 ft. 4 in., 17 ft. 7 in., 17 ft. 9 in.

Stock lengths, any length. Price.....each, 80c. doz., \$8 50
Odd lengths made in dozen lots only. Price.....per doz., 9 00

DANISH-WESTON SEPARATOR BELTS

WACH'S SPECIAL RAWHIDE

After considerable experimenting we have found a separator belt which is durable, gives eminent satisfaction, and which we can thoroughly recommend.

Sizes and Prices

1½ inch, per foot.....	16c net
2 " " ".....	19c "
2½ " " ".....	24c "

LIGHT DOUBLE LEATHER (Edges sewed)

An extra fine quality belt

2 inch, per foot.....	22½c net
2½ " " ".....	29c "

ENDLESS FLAT RAWHIDE SEPARATOR BELTS

For "Jumbo," "United States" and "Reid Overflow" Separators.

17 ft. 6 in. x 1¼ in., "Jumbo".....	each, \$2 00
18 ft. x 1¼ in., " " ".....	" 2 00
18 ft. x 1½ in., " " ".....	" 2 50
18 ft. 6 in. x 1¼ in., " " ".....	" 2 00
18 ft. 2 in. x 1½ in., " " ".....	" 2 25
18 ft. 6 in. x 1½ in., "United States".....	" 2 25
19 ft. 6 in. x 1½ in., "Reid Overflow".....	" 3 00

PERFECTION FLAT SEINE COTTON BELTS

For "Reid Overflow," and "Old Style" Danish-Weston, "United States," Alexandria" and "Jumbo" Separators.

 **The Point is** the lighter the belt the less strain on your spindle.

The difference between Flat and Rope Belts

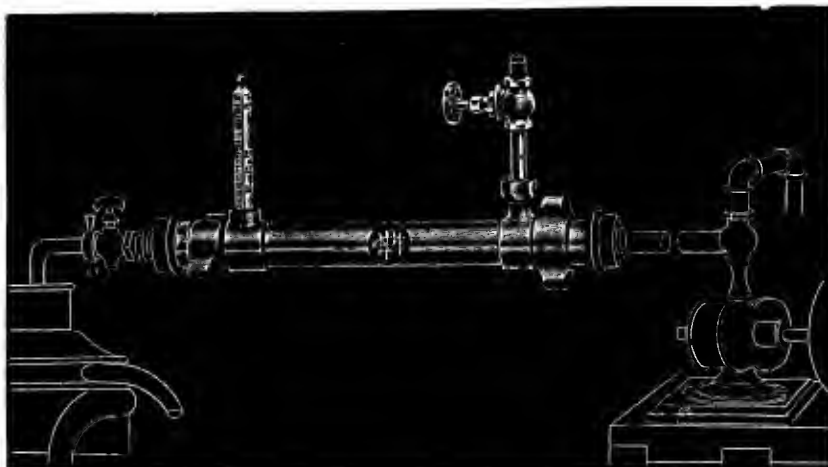
Our 1-inch flat belt presents its full width to surface of pulley and weighs only 9-16 lb.; whereas, the standard size rope belt, namely, ¾-inch, presents only ¼-inch surface to pulley, and weighs ¾ lb.

Belt running over pulleys of small diameter at high speed ought to be as thin and wide as possible.

19 ft. 6 in. x 1½ in., "Reid Overflow".....	each, \$2 50
13 ft. x 2½ in., "Old Style" Danish Weston, (25 in. machine).....	" 3 00
18 ft. 2 in. x 1½ in., "United States".....	" 2 25
17 ft. x 1¼ in., No. 1 "Alexandria".....	" 2 50
17 ft. x 1 in., No. 2 " ".....	" 2 00
17 ft. x ¾ in., No. 3 " ".....	" 1 75
17 ft. 6 in. x 1¼ in., "Jumbo".....	" 2 00
18 ft. x 1¼ in., " " ".....	" 2 00
18 ft. x 1½ in., " " ".....	" 2 50
18 ft. 6 in. x 1¼ in., " " ".....	" 2 00

MILK HEATERS

THE "IDEAL"



Simplicity, few parts and those easy of access, are essential points in the best Milk Heater. We claim that the "Ideal" is not only the simplest heater on the market, but that it will do more and better work than any other device.

It takes up very little room; it is easily cleaned; it is noiseless; it can be taken apart quickly; it heats the milk perfectly even, while the thermometer indicates the temperature, which can be instantly changed to suit the operator; it is provided with a rubber washer to hold the thermometer constantly in the milk; it is made of brass and is heavily nickel-plated, all joints being ground and the inside smoothly polished.

Size of device, 22 in. long with 1 1/2-in. end connections and 1/4-in. steam connections.

One "Ideal" Heater will handle 6,000 lbs. of milk per hour.

It can be used either with a pump or the gravity system. When the pump is used couple heater just above the pump; run the overflow pipe from 4 to 6 in. higher than the heater and so direct it that the overflow returns to the vat.

We are so confident regarding the good qualities of this heater that they will be sent on 15 days' trial to responsible parties.

Want of space permits us to print but one testimonial as follows:

OFFICE OF THE HIGHLAND GROVE CREAMERY,
 Creamery Package Manufacturing Co., Chicago. POYNETTE, WIS., January 27, 1897.

GENTLEMEN:—I have had in use one of your "Ideal" Milk Heaters for about two months, and will say that I have seen no heater that equals it in simplicity and perfection. No milk burns on it whatever, and the temperature can be instantly adjusted, and does not affect the complete separation of the milk or injure the grain in the butter. Its simplicity alone is enough to recommend it to the trade in general.

Yours truly,

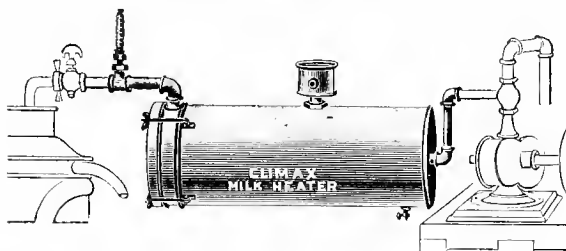
F. W. HENRY, Proprietor.

Price, complete, as per cut.....each, \$10 00

THE "LARKEY"

Price, complete each, \$15 00

THE CLIMAX MILK HEATER.



The invention of this implement came from a demand by creamery-men for something better than the common tempering vat for heating milk up to the required temperature for the separator.

It is known that where milk flows into the separator, if it has been thoroughly and evenly heated, better results are obtained, than where it is allowed to run in partially and unevenly heated—the latter causing the skim milk to test more or less butter fat, which defect is always laid to the separator.

In construction, the inside cylinder is a removable one, being held in place by bolts and thumb nuts, and set away from the outside cylinder to form a space for a thin sheet of milk between the outside and inside cylinder. The milk is delivered into this place and spreads out into a thin sheet or layer, so as to be evenly and thoroughly heated.

The inside cylinder may be easily and quickly removed, permitting the ready and thorough cleansing of all surfaces with which the milk comes in contact.

In order to effect the rapid and thorough heating of milk, two things are essential, the milk must be distributed in a thin sheet or layer, and the heating medium must be caused to circulate, otherwise there will not be that even distribution of heat.

The outer cylinder is filled with water and steam applied to its entire length, heating the water and thus heating the thin sheet of milk. No steam comes in contact with the milk, as this has been found quite objectionable, especially where foul water and boiler compounds are used.

The Heater may be used in connection with a rotary pump, or direct from the receiving vat.

Very little steam is required for its use, generally $\frac{1}{4}$ to $\frac{1}{2}$ turn of the half-inch valve is found sufficient.

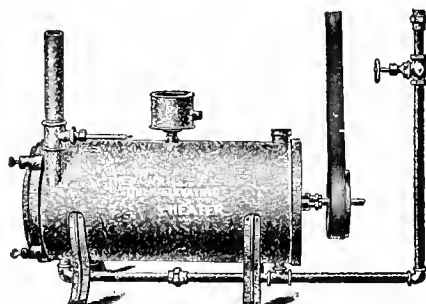
The heater may be attached to a rotary pump, as shown in cut, or connected direct to the vat, where the gravity system is used.

SIZES AND PRICES.

No. 0, capacity	500 lbs. milk per hour.	\$14.00
No. 1, “	2,000 “ “ “ “	15.00
No. 2, “	3,500 “ “ “ “	18.00
No. 3, “	6,000 “ “ “ “	20.00
No. 4, “	8,000 “ “ “ “	25.00

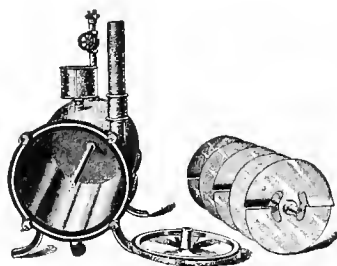
THE CURTIS MILK ELEVATING HEATER.

The cost of a satisfactory heater together with a pump necessary for elevating has been so high that we believe there is a demand for a simple device in one machine. With this in mind we have devised and perfected the heater shown in the accompanying cuts.



CUT NO. 1.

Cut No. 1 shows the exterior with belt attachment, thermometer and the milk inlet. This heater is designed to set on the floor and will elevate to the separator.



CUT NO. 3.

Cut No. 2 shows the interior and the elevating device. The space between the outside galvanized iron jacket and the inside tin jacket permits water and steam for heating purposes; no steam coming in contact with the milk.

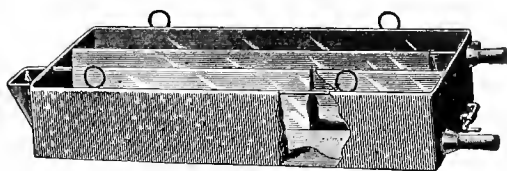
The elevating device is easily removed for cleaning. We follow closely the principle of the original Curtis Milk Heater, which has become so popular.

SIZES AND PRICES.

No. 1 capacity for one separator.....	\$25.00
No. 2 capacity for two separators.....	30.00
No. 3 capacity for three separators.....	35.00
No. 4 capacity for four separators.....	40.00

TEMPERING VATS

THE "IDEAL"



This Vat is made of galvanized iron outside and heavy tin inside. It is divided into compartments and has water space in partitions at the bottom and sides. It is furnished with steam and water connections and outlet for two separators. A noiseless water heater is attached, which prevents noise and gives a perfect circulation.

They are made in three sizes.

SIZES AND PRICES

39 in. long,	24 in. wide,	9 in. deep.	.....	\$12 00
70 "	35 "	8 "	.....	20 00
34 "	18 "	6 "	Fitted for 1 separator.....	7 50
34 "	18 "	6 "	Fitted for 2 separators.....	8 00

The "Wood Jacketed," price each.....\$15.00

HEATER VAT GOVERNOR

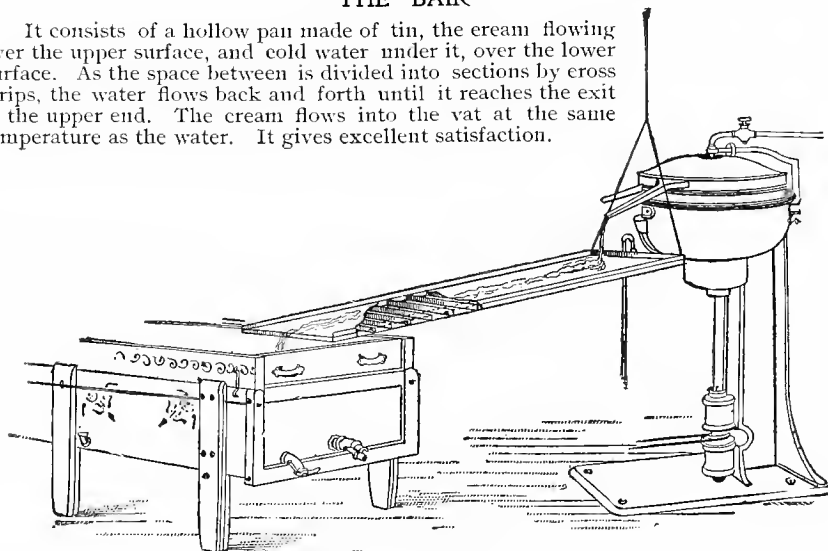
These Governors are very convenient for regulating the supply of milk in the different styles of heater vats. They are automatic and need no watching.

Price, complete with ball, faucet and pipe connections.....\$4 00

SEPARATOR CREAM COOLERS

THE "BAIR"

It consists of a hollow pan made of tin, the cream flowing over the upper surface, and cold water under it, over the lower surface. As the space between is divided into sections by cross strips, the water flows back and forth until it reaches the exit at the upper end. The cream flows into the vat at the same temperature as the water. It gives excellent satisfaction.



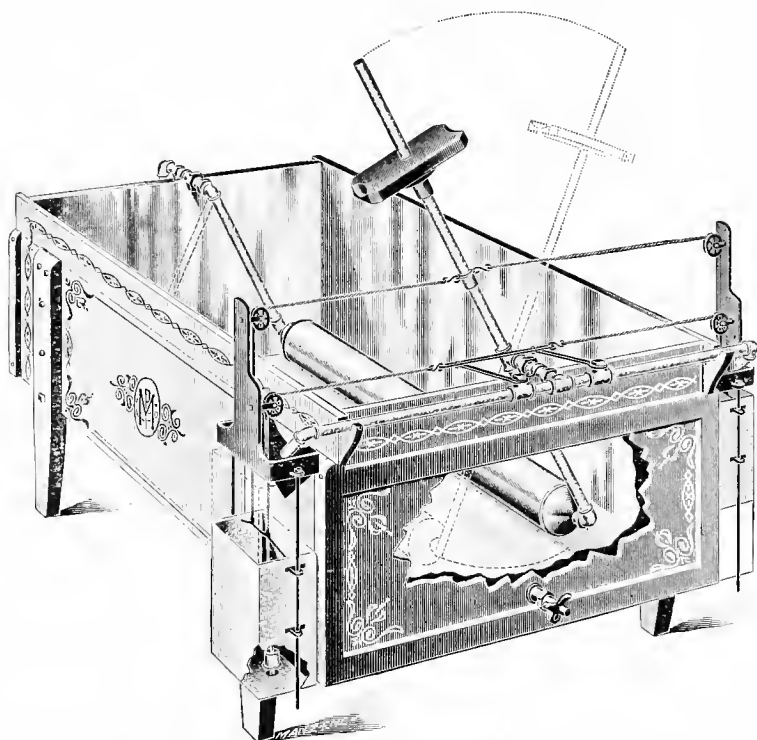
SIZES AND PRICES

6 foot.....	\$8 00	10 foot.....	\$10 00
8 ".....	9 00	12 ".....	12 00

MADE FROM TINNED COPPER

6 foot.....	\$15 00	10 foot.....	\$25 00
8 ".....	20 00	12 ".....	30 00

THE SNYDER MILK COOLER.



The above illustration shows our Automatic Milk and Cream Cooler. This Cooler is especially adapted to the cooling of cream. It is so constructed that the water used as a cooling medium not only performs its cooling office, but also automatically operates the Cooler.

The water after passing through the cooling cylinder, by means of valves automatically operated, is delivered into the galvanized tanks, first on one side, and then on the other. Each tank in turn, as it is filled with water, is carried down by its own weight, swinging the cooler. When its lower limit is reached, the outlet valve is opened, and the tank emptied.

In the meantime, the tank on the other side is filled, and the opposite motion is begun. It will easily be seen that this cooler not only uses the full cooling properties of the water, but also, by the same medium, keeps up a constant agitation in the Vat. Buttermakers will appreciate this feature, for very much of the poor butter made in the country is caused by the uneven ripening of the cream.

As long as the buttermaker is in the creamery to thoroughly stir the cream occasionally, the ripening goes on, evenly and satisfactorily. During the night, however, in the warm summer months, there is no way of keeping up the agitation so essential. The Snyder Cooler entirely overcomes this difficulty.

This Cooler can be attached to any ordinary Cream Vat, making it unnecessary to go to the expense of a complete Cream Ripening Outfit.

SIZES AND PRICES.

	Tin.	Copper.
250-gal.....	\$33 00	\$49 50
300-gal.....	34 00	51 00
400-gal.....	35 00	52 50
500-gal.....	36 00	54 00

Price includes all fittings except vat.

SEPARATOR CREAM COOLERS

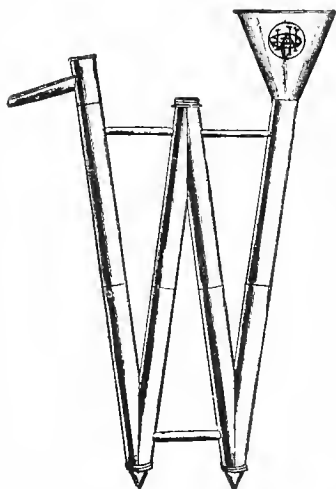
THE "STAR"

This apparatus is guaranteed to cool the cream as fast as it comes from the separator, to within two degrees of temperature of water used. Is made of corrugated copper sheets, and fitted for $\frac{3}{4}$ -inch hose. Used in some of the largest and best creameries in the country.

Plain Cooler for separator.....\$15 00

With milk tank and fittings for elevated water supply..... 20 00

With milk tank and fittings for siphon supply..... 25 00



THE "IDEAL"

For a cheap, effective and simple Cream Cooler the "Ideal" cannot be surpassed. It is placed in a common water-tight barrel containing ice and water. When no ice is at hand a continuous stream of cold water can be kept running into the barrel and thus bring the temperature of the cream which runsthrough the pipe of the Cooler down to the proper temperature. It is so made that it can be cleaned very easily, having screw taps, securely packed with cork, fitted on each joint. These can be removed, leaving the Cooler open so that each length can be cleaned thoroughly. This Cooler can only be used advantageously in connection with a high separator on the same elevation as the vat.

PRICES

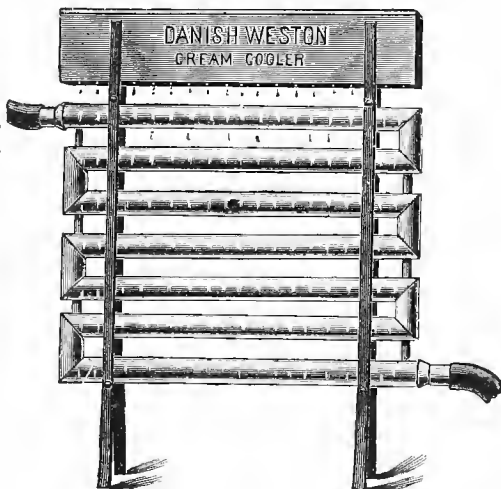
Cooler complete with 1 wire handle brush....\$5 00

Extra brushes, each..... 50

THE "DANISH-WESTON"

This apparatus will be found invaluable in cooling cream as it leaves the separator. Cream is led into the pan from the separator, and trickles down over the pipes as water is being forced through them. It sets in the cream vat, the cream being cooled to nearly the same temperature as the water forced through the pipes. The importance of cooling cream as it leaves the separator, for fine butter-making, can hardly be overestimated.

Price..... \$8 00



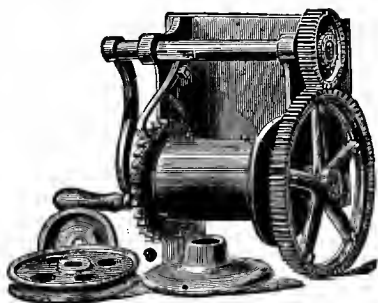
HOISTING CRANE IRONS

FOR HANDLING CREAM AND MILK CANS

The accompanying cut shows the details of our hoisting crane irons, complete, as we ship them out. The engraving shows the cranes and the iron socket in which the upright timber revolves, and the grooved wheels which the ropes pass over.

Hoisting crane irons complete, consisting of two shafts, four journal boxes, two geared wheels, one crank, two grooved pulleys. These are all finished and fitted, mounted together on a block of hardwood ready to attach to the upright frame by simply bolting them.

Price.....\$8 50



MILK CAN HOOKS

To Use in Connection with the Hoisting Crane Irons

Complete with crossbar and 25 ft. $\frac{3}{4}$ -inch rope.....\$2 50

PATENT "SURE GRIP" STEEL TACKLE BLOCK

This invention will interest all who have felt the necessity of a tackle block that will hold the load at any point without fastening the rope. The brake is automatic. The body of block made of steel plate. The pins are cold rolled steel.

PRICES, INCLUDING LOWER BLOCK

NO. AND SIZE OF ROPE	One Man Can Lift	Capacity	Test Without Breaking to	
No. 3. To be used with $\frac{3}{8}$ -in. rope	300 lbs.	600 lbs.	2,800 lbs.	\$ 3 00
" 4. " " " $\frac{1}{2}$ " "	350 "	1,000 "	3,800 "	5 50
" 5. " " " $\frac{5}{8}$ " "	400 "	1,800 "	4,500 "	7 00
" 6. " " " $\frac{3}{4}$ " "	450 "	2,500 "	5,800 "	8 50
" 6 $\frac{1}{2}$. " " " $\frac{3}{4}$ " "	850 "	4,000 "	9,000 "	14 00

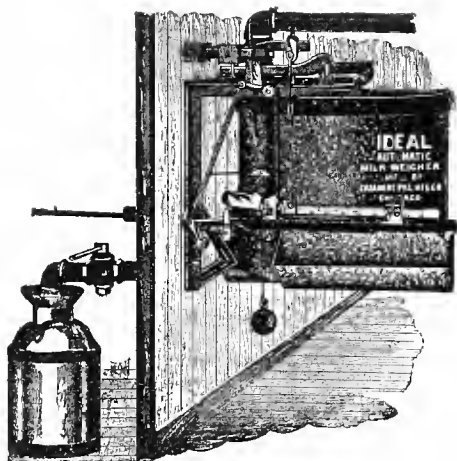


Track, including short hangers $3\frac{1}{2}$ feet apart, fitted and ready to put up, suitable for carrying 500 lbs., per lineal foot.....\$0 40
 Same, suitable for carrying 1,000 lbs., per lineal foot..... 75
 Single trolley, for 500-lb. track.....each, 1 00
 Double " " heavy " " 5 00

Can Supply Hangers Alone, if Wanted

THE IDEAL SKIM MILK WEIGHER

THE PROBLEM
OF SKIM MILK
DISTRIBUTION.



THE PROBLEM

Every Creamery that returns the skim milk to its patrons has experienced the difficulty of getting a fair and equitable distribution. Many otherwise successful and promising creameries have been entirely ruined on account of trouble growing out of this problem. It has been a source of constant friction. The late comers either had no skim milk or it was so diluted with water as to be utterly worthless.

HOW TO OVERCOME IT

A great many different methods have been tried to overcome this difficulty. Some creameries employ a man to pump or dip all the skim milk for its patrons. This plan is expensive and at best is almost entirely a matter of guess work.

WEIGHT THE ONLY PERFECT STANDARD

It has been conceded for a long time that a mechanical distribution of some kind is the only absolutely accurate and satisfactory solution of the problem. This distribution, to be just to all, must be made on the basis of actual weight in exact proportion to the amount of milk delivered.

THE IDEAL WEIGHER

As its name implies, the machine actually weighs the milk. The weighing tank is adjusted so as to swing on a scale beam. The machine is located on the inside of the creamery at a point convenient for the delivery of the skim milk. It is connected with the skim milk tank so that the milk passes into the weigher tank and through it to the patron outside of the creamery.

THE CHECKS

Each machine is provided with a set of V-shaped checks, put up in a convenient case. These represent a certain amount of milk. As the patron's milk is weighed in he is handed a check corresponding to the amount of milk he has delivered.

HOW IT WORKS

The patron having received his check proceeds to the skim milk platform. The check is placed in the slot in the bar which projects through the building. He then places his hand on the end of bar and pushes it slowly inward as far as it will go. This sets the scales at the right notch, and at the same time opens the inlet valve and the milk flows into the can. When the beam tips with the correct weight the inlet valve closes and the outer valves open, and the milk can be drawn off. The whole process is simple, rapid and absolutely accurate.

A FEW POINTS OF SUPERIORITY

Milk is delivered absolutely by weight, therefore there is no fluctuation on account of heat and cold. It is a well-known fact that milk varies largely in bulk compared to weight at different seasons of the year. The machine can be adjusted to deliver any desired per cent. Each check is marked plainly, with weight it represents. All parts are easy of access so as to be easily cleaned. It is automatic; no pumping or labor of any sort connected with its operation.

CANNOT BE BRIBED

It is absolutely impossible to get more than the amount of milk represented by the checks. The Ideal Weigher cannot be bribed. It will show no partiality.

DESCRIPTION

This machine is made especially for the distribution of skimmed milk to the patrons of a creamery. It is simple in construction and easy to operate. It takes up small space and is easy to set up. It is thoroughly practical, strong and durable. It has a capacity of 10,000 pounds of milk per hour, and this can be increased if necessary. There are five checks of each size to a set. The shortest check represents 15 pounds of milk and the longest 400 pounds, with other sizes every 5 pounds intervening. The entire machine is constructed of iron and brass, with the best chilled steel bearings on scales. It has no wood to swell or get out of order, and no levers to operate.

We Ship These Machines on 30 Days' Trial. Price, \$100.00

THE "BARBER-COLMAN" CHECK PUMP

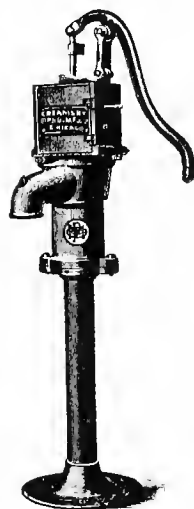
For measuring the skimmed milk or whey back to the patrons of Creameries and Cheese Factories.

DESCRIPTION.—The Barber-Colman Check Pump is, as shown in the cuts, simply an ordinary suction and force pump with a device added at the top which locks it and prevents its being operated until a check is dropped into the slot on top of the square box. Then if the T-rod is pulled, the pump unlocks and as many strokes can be taken as necessary to throw the amount of milk indicated by the check. By changing the adjustment of the stop collar, the length of the stroke can be varied to cause the pump to throw any desired percentage of the face value of the checks, allowing for the different percentages of the cream subtracted from the milk in different creameries. When all the strokes permitted by the check have been taken, the pump automatically locks, and if the T-rod is then pulled again, the check drops from its position in the mechanism into the check tray, which is placed in position to receive it, and locked up, to prevent the patrons from using the same checks over again. If the T-rod is pulled again, or any number of times after the pump is locked, it will not unlock the pump unless another check is dropped in. And if it be pulled before the check is pumped out, the check does not drop into the tray, but remains in the mechanism until the full number of strokes has been taken.

If the person operating the pump neglects to take full strokes, the amount of milk thrown at each stroke will be less, but the number of strokes which he can take before it locks will not be any greater. Consequently, in order not to cheat himself he must take full strokes. If the milk in the vat runs so low that the pump sucks air and foam, and does not throw the full proportion of solid milk, the operator of the pump will instantly know it by the feeling of the stroke as he pumps, and he should then wait until more milk has run into the vat.

METHOD OF USING.—The man who weighs in the milk pays each patron checks equal to the amount of milk which he brings. It is not necessary to calculate the amount of skimmed milk or whey due him—the pump does that. The patron takes the checks and drops them into the slot and pumps just the skimmed milk or whey due him.

PRICE, Each complete \$50.00
EXTRAS AND PARTS FURNISHED UPON APPLICATION.



THE "IDEAL" WEIGH CAN GATE OPENER.

PATENT APPLIED FOR.

One of the Handiest Articles in a Factory.

It saves time, it saves milk; it saves work and therefore saves money. Every factory man will appreciate the usefulness of this little device at a glance. It is just what every weigh can should be fitted with. It can be attached easily and quickly and with proper use will last indefinitely.

IT IS SO MADE THAT IT CAN BE
 ADJUSTED TO FIT ANY
 STYLE OR SIZE CAN.

PRICE, Nickel-plated finish \$2.50



WEIGH CANS

Our Weigh Cans are strongly made of the best quality of XXXX tinplate. They have slanting bottoms and Perfection Gates.

PRICE

PLAIN

Holding 40 gallons, with 1 gate.....	\$10 00
“ 60 “ “ 1 “	11 00
“ 80 “ “ 1 “	13 00

WITH PARTITION

Holding 60 gallons, with 2 gates.....	\$15 50
“ 80 “ “ 2 “	16 50

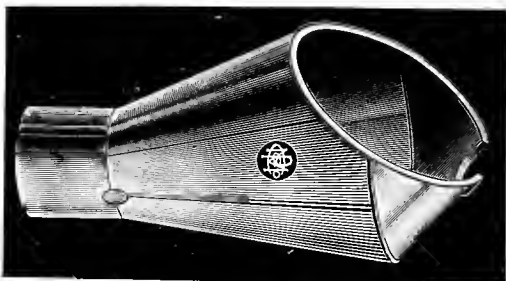
CONDUCTOR HEADS

Our Conductor Heads are made extra strong, and connected with a short piece of pipe suitable for short delivery. When more lengths are required, they are arranged so as to telescope together, and are thus easier to handle.

HEAVY

For large factories, made from the best XXXX tin.

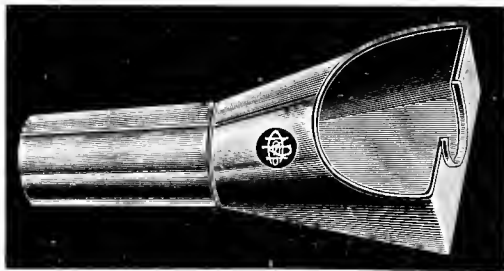
Price, each.....\$1 80



LIGHT

For small factories.

Price, each \$1 35



CONDUCTOR TROUGH



Price, 2x Tin, 4 in., per foot.....	\$0 30
Price, 4x Tin, 6 in., per foot	40

Double the lists to obtain price on above goods furnished in tinned copper.

“PERFECTION” GATES

FLANGED, INSIDE THREAD

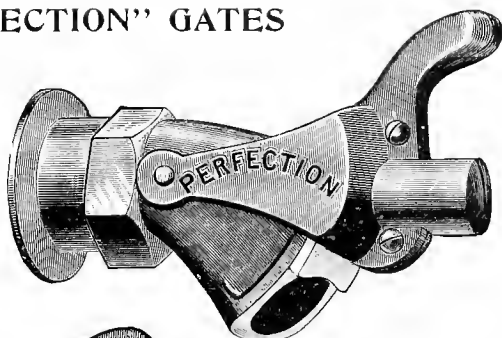
SIZES AND PRICES

1" iron, japanned, 1-inch.....	\$1 25
“ “ “ 1 1/4 “.....	1 50
“ “ “ 1 1/2 “.....	1 75
“ “ “ 2 “.....	2 50
“ “ “ 3 “.....	3 00

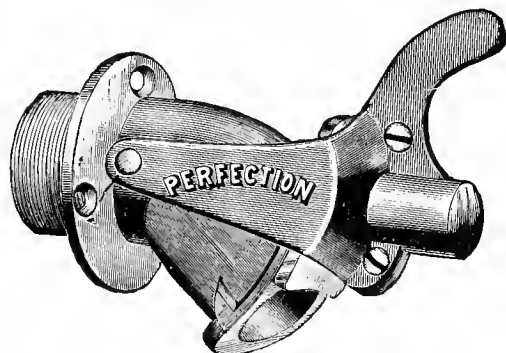
NO FLANGE, OUTSIDE THREAD

SIZES AND PRICES

Same as above



Flanged, Inside Thread.



FLANGE CHURN GATE

SIZES AND PRICES

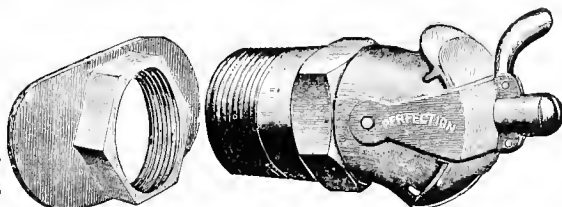
White metal, iron handles, 1-inch, each.....	\$1 75
White metal, iron handles, 1 1/4- inch, each.....	2 00
1 1/2-inch, each.....	2 50
2-inch, each.....	3 00

WEIGH CAN GATE

SIZE AND PRICE

Iron, japanned, 3-inch, with
galvanized iron collar,
each.....\$3 85

Collars only.....each, 85



PRICE LIST OF “PERFECTION” GATE EXTRAS

HANDLES

1-inch, right or left.....each,	\$0 15	Per set and screws.....	\$0 30
1 1/4 “ “ “.....	15	“ “ “.....	30
1 1/2 “ “ “.....	20	“ “ “.....	40
2 “ “ “.....	20	“ “ “.....	40
3 “ “ “.....	30	“ “ “.....	60

CAPS (BRASS)

1-inch.....each,	\$0 40
1 1/4 “.....	45
1 1/2 “.....	50
2 “.....	60
3 “.....	1 00

SPRINGS (BRASS)

1-inch.....each,	\$0 10
1 1/4 “.....	10
1 1/2 “.....	15
2 “.....	15
3 “.....	20

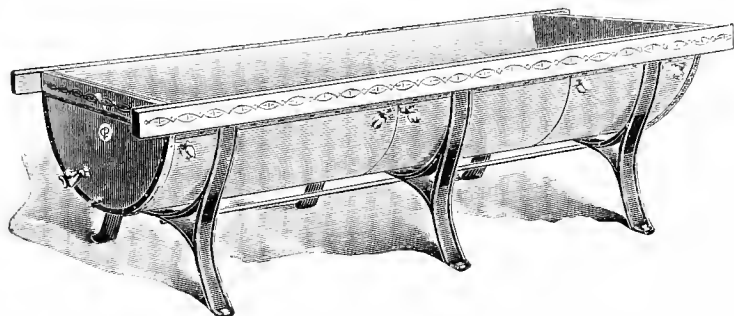
MOLASSES GATES

No. 1, 1- inch.....each,	\$0 60
“ 2, 1 1/8 “.....	70
“ 3, 1 3/8 “.....	80
“ 4, 1 5/8 “.....	90
“ 5, 1 3/4 “.....	1 00



THE "IDEAL" MILK AND CREAM VAT

SOMETHING ENTIRELY NEW



We illustrate herewith our new "Ideal" Milk and Cream Vat. We have seen the need of a strong and more durable vat for a long time and now feel confident that the "Ideal" Vat will meet with the hearty approval of every factory operator.

The lining proper is made of heavy "tinned" copper. This makes a lining that will outwear several common tin ones. The lining is attached to a wood rail same as common tin vats. This rail is all the wood there is about the vat.

Instead of wooden body or frame we use the heavy galvanized steel frame made in form same as the tinned lining. This will outlast many times over the old style wooden frame.

The lining and body are so put together that the regular water space is left between them and space for ice box on the end provided for in the cream vats.

The whole vat is held up and strengthened by strong iron legs and braces made so as to curve underneath the vat and thus prevent them being in the way of the operator. All iron pipes are galvanized.

If you want a vat that will last as long as you run your factory get an "Ideal." Do not buy any more "wood frame" cheap "tin" lined vats which will last two or three years and always be out of repair. It is not economy. The "Ideal" would be the cheapest and at the same time much more satisfactory.

PRICES IDEAL VATS.

	Tin Lined	Copper Lined
100 gallons.....	\$45 00	\$ 65 00
200 ".....	55 00	80 00
250 ".....	57 50	85 00
300 ".....	60 00	90 00
400 ".....	70 00	100 00
500 ".....	85 00	120 00
600 ".....	95 00	140 00

Cream Vats with ice box on end, \$5.00 additional.

DIMENSIONS OF VATS.**IDEAL VATS.**

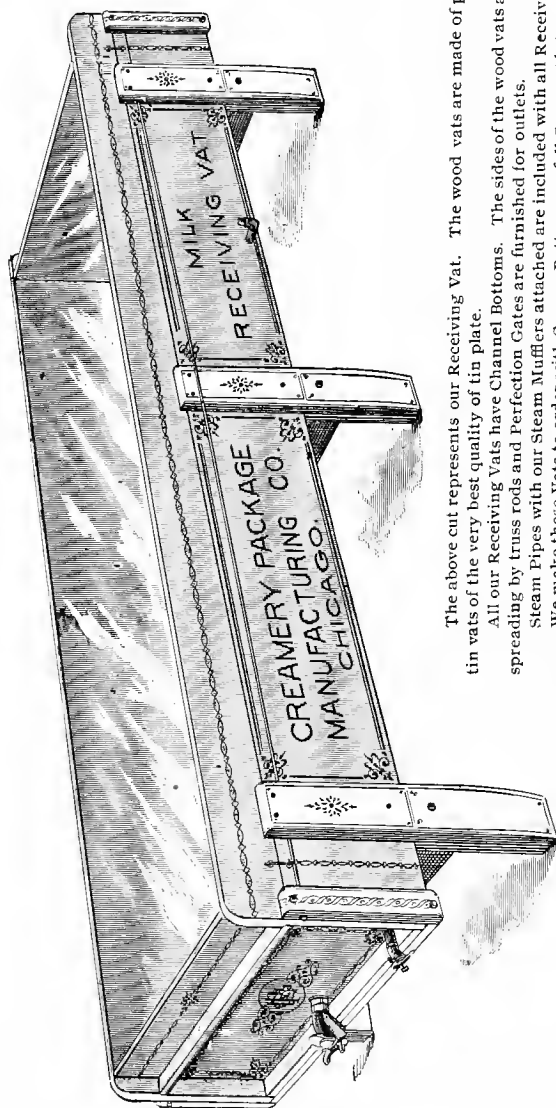
Cheese Vats	Width	Length	Height	Deep Inside
600 gallons.....	45	183	38	26
500 ".....	45	155	38	26
400 ".....	45	121	38	26
300 ".....	45	95	38	26
250 ".....	33	134	32	20
200 ".....	33	109	32	20
150 ".....	33	84	32	20
100 ".....	33	59	32	20

CHANNEL BOTTOM VATS

	Lengths, Inches	Height, Inches	Width, Inches
700 gallons.....	185	36	44
600 ".....	168	36	49
500 ".....	152	36	49
400 ".....	128	36	49
350 ".....	121	36	45
300 ".....	114	36	45
250 ".....	102	36	45
200 ".....	89	36	45
150 ".....	76	36	41
100 ".....	69	36	35
75 ".....	62	36	34
55 ".....	53	36	29

Ice End Cream Vats are 10 inches longer. **Ice Sides Cream Vats** are same length and 12 inches wider. **Twin Vats** are $9\frac{1}{4}$ inches wider than Cream Vats of the same number of gallons.

MILK RECEIVING VATS



The above cut represents our Receiving Vat. The wood vats are made of pine, and the tin vats of the very best quality of tin plate.

All our Receiving Vats have Channel Bottoms. The sides of the wood vats are kept from spreading by truss rods and Perfection Gates are furnished for outlets.

Steam Pipes with our Steam Mufflers attached are included with all Receiving Vats. We make these Vats to order with Copper Bottoms or full Copper Linings.

SIZES AND PRICES

	Tin Lined	Copper Bottom	Copper Lined		Tin Lined	Copper Bottom	Copper Lined
100 gal.	\$22 50	\$52 50	\$ 62 50	600 gal.	\$ 60 00	\$ 85 00	\$105 00
150 "	35 00	53 50	63 50	700 "	70 00	88 00	115 00
200 "	42 00	55 00	65 00	800 "	80 00	95 00	125 00
300 "	45 00	60 00	70 00	900 "	90 00	105 00	135 00
400 "	50 00	70 00	85 00	1,000 "	100 00	115 00	145 00
500 "	55 00	80 00	100 00				

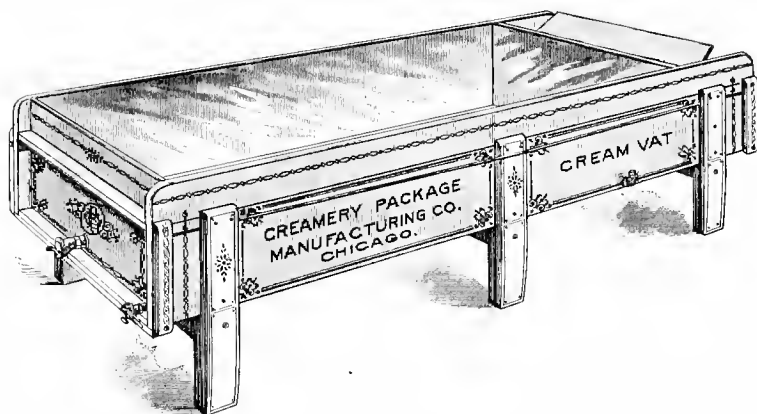
Prices of Extra Tin Linings with Rails

100 gal.	\$14 00	300 gal.	\$18 00	600 gal.	\$31 00	900 gal.	\$40 00
150 "	15 00	400 "	24 00	700 "	34 00	1,000 "	44 00
200 "	16 00	500 "	27 00	800 "	37 00		

SEE PAGE 101 FOR DIMENSIONS OF VATS.

CREAM VAT

WITH ICE BOX ON END



The above represents our Cream Vat, with end ice box. To manufacture the finest quality of butter, it is necessary to hold the cream from twenty-four to forty-eight hours at a temperature that will properly ripen the cream, and develop the right amount of acidity. This result is attained by using a vat with ice box. This ice box is large enough to contain about 100 pounds of ice, and has a tight-fitting cover, which protects the ice and water from the influence of the surrounding air.

Cream Vats are provided with steam pipes, so that the cream may be brought to the proper temperature in cold weather, and these steam pipes are furnished with our Steam Mufflers, which make the heating-up process noiseless.

The tin vats are made of the heaviest tin plate of best quality, and are constructed with Channel Bottoms, permitting the entire contents of the vat to be drawn off without tilting. The tin vats are painted on the outside to prevent rusting. The sides of the vats are kept from spreading by truss rods, and Perfection Gates are furnished for the cream outlets.

We invite special attention to our Cream Vats with Copper Bottoms or full Copper Linings. Purchasers desiring vats of great durability should buy this style.

On special orders cream vats can be furnished with ice boxes extending the entire length of each side of the vat.

SIZES AND PRICES

	Tin Lined.	Copper Bottom.	Copper Lined.		Tin Lined.	Copper Bottom.	Copper Lined.
100 gallons..	\$35 00	\$57 50	\$67 50	400 gallons..	\$55 00	\$75 00	\$ 90 00
200 " ..	45 00	60 00	70 00	500 " ..	60 00	85 00	105 00
300 " ..	50 00	65 00	75 00	600 " ..	65 00	90 00	110 00

Without ice box, \$5.00 less.

Covers furnished when ordered, \$5.00 extra. With ice boxes on sides and one end, \$5.00 extra.

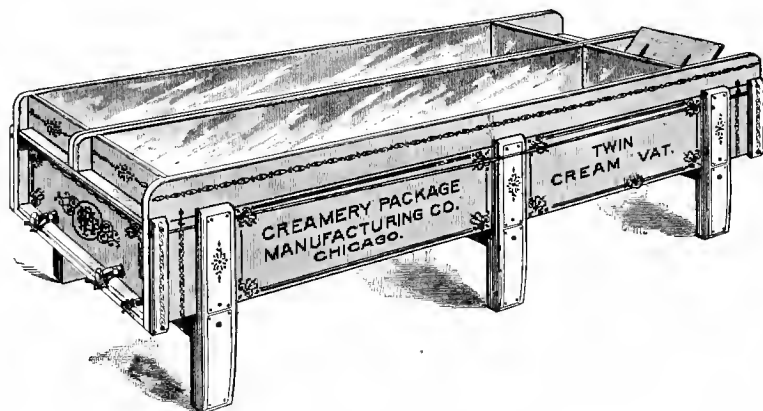
PRICES OF EXTRA TIN LININGS WITH RAILS

100 gallons.....	\$14 00	400 gallons.....	\$24 00
200 " ..	16 00	500 " ..	27 00
300 " ..	18 00	600 " ..	31 00

SEE PAGE 101 FOR DIMENSIONS OF VATS.

TWIN CREAM VAT

WITH ICE BOX ON END



The wood part of our Twin Cream Vat which is represented in the above cut is divided lengthwise into two water-tight compartments, with separate ice box and heating pipes for each compartment; hence the contents of either vat may be heated or cooled entirely independent of the other.

These Twin vats are very desirable where it is necessary to economize space, and the quantity of cream is not large enough to require two vats.

The tin vats are all made with channel bottoms, and the cream outlets have Perfection Gates. Our Steam Mufflers are attached to the steam pipes, making them practically noiseless in operation. The sides of the vat are prevented from bulging by truss rods.

Vats carried regularly in stock have ice box on one end only, but on orders we can supply these vats with ice boxes running the entire length of each side.

We furnish Twin Vats with copper bottoms or full copper linings when desired.

SIZES AND PRICES

	Tin Lined.	Copper Bottom.	Copper Lined.
200 gallons.....	\$ 50 00	\$ 70 00	\$ 80 00
300 ".....	60 00	75 00	85 00
400 ".....	70 00	90 00	115 00
500 ".....	80 00	100 00	125 00
600 ".....	90 00	110 00	140 00
700 ".....	100 00	120 00	150 00

Twin Vats with ice box on the sides instead of end, same price as above. With ice boxes on sides and one end, \$5.00 extra.

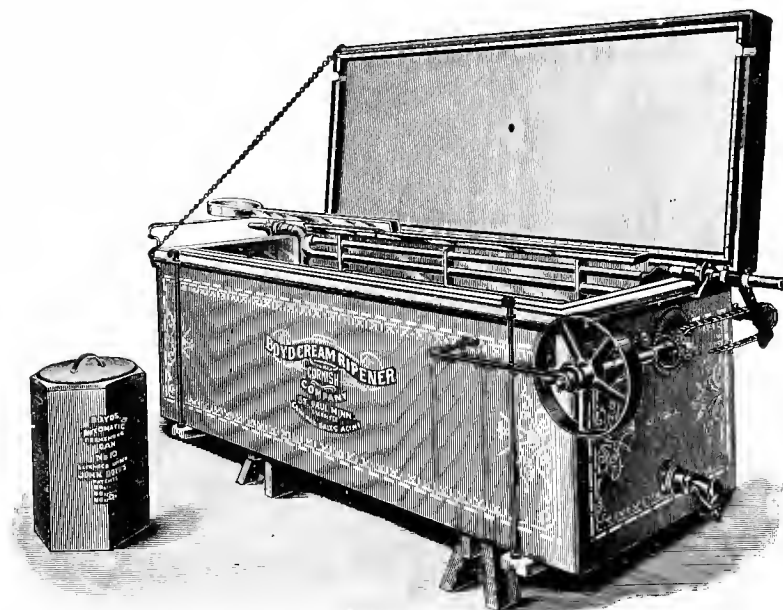
PRICES OF EXTRA TIN LININGS WITH RAILS

200 gallons.....	\$21 00	400 gallons.....	\$30 00	600 gallons.....	\$38 00
300 ".....	24 00	500 ".....	34 00	700 ".....	42 00

SEE PAGE 101 FOR DIMENSIONS OF VATS.

Good Butter All the Time.

BOYD CREAM RIPENERS.



THE BOYD SYSTEM OF CREAM RIPENING.

The Boyd System is the cultivation of proper bacteria in Cream Ripening so simplified as to be practical for every buttermaker, either factorymen or private dairymen.

It Saves Labor and Ice

It Requires No Patent Starters or Cream Ferments

It Improves Flavor and Texture

It Insures Exhaustive Churning

The outfit consists of the Boyd Cream Ripener, complete with cooling device, all ready to belt to line shaft, and the Boyd Fermenting Can. Boyd Fermenting Cans are sold only in connection with the Cream Ripeners.

Made in sizes suited to factory or private dairy.

PRICES

Creamery Sizes

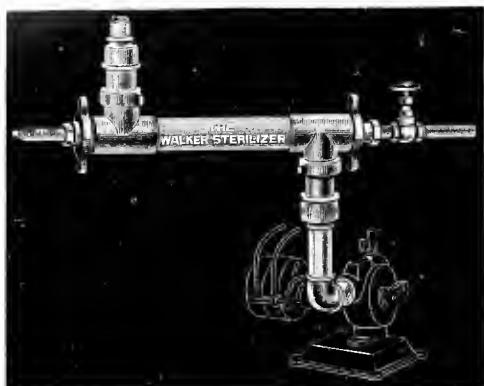
	Traveling Coil	Rotary Coil	Swinging Coil
100 Gal.....	\$115 00	\$100 00	\$ 80 00
200 ".....	150 00	130 00	110 00
300 ".....	170 00	150 00	123 00
400 ".....	210 00	180 00	140 00

Dairy Sizes

10 Gallon.....	\$22 00	50 Gallon.....	\$36 00
15 ".....	28 00	75 ".....	46 00
30 ".....	32 00		

Price includes fermenting can and one round bottom cooling can to suspend in vat, and screw pulley from which to suspend can.

THE WALKER STERILIZER.



The time has come when close competition compels every creameryman to take the best possible care of his patrons and their interests, and while the price of butter runs so low the strictest economy has to be practiced by both.

The main object for sterilizing is to keep the skimmed milk sweet after it leaves the creamery until disposed of in the various ways of feeding. As calf raising is one of the chief industries of the dairy farmer and figures largely in his yearly returns, he cannot afford to lose any or feed them whole milk for months, as some do, when the

skimmed milk can be kept sweet at so little expense. Proof can be had where calves have been raised on sterilized milk after they were three days old. Some people cannot raise calves under any circumstances.

The process of sterilization consists in heating the skim milk to such a temperature as will destroy the germs of decay.

A number of devices have been arranged to do this work. All have been awkward and unsatisfactory. The Walker Sterilizer is simple and convenient. It will handle a very large amount of milk and do the work perfectly. It occupies very little room and uses but little steam.

PRICE..... \$15.00.

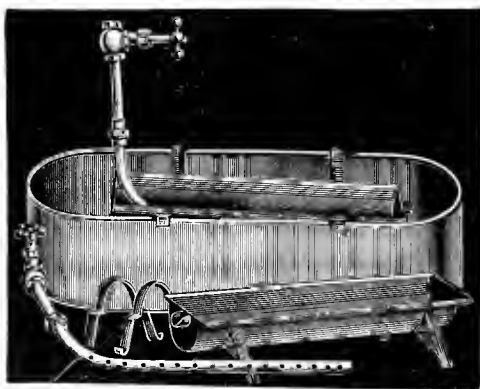
15 DAYS' TRIAL ALLOWED TO RESPONSIBLE PARTIES.

Further Information on Application.

THE JENSEN SKIMMED MILK STERILIZER.

Will make you money by giving satisfaction to your customers.

Each sterilizer is fitted with Jenkin's globe valve and self-packing union to fit into our "Ideal" steel tank, and will be shipped so unless otherwise ordered. The sterilizer can be made to set in the bottom of the vats if ordered so, otherwise it must be put up as shown in illustration. The cut above gives you an idea of the apparatus. The sterilizer is not sent on trial as the cost is too small.

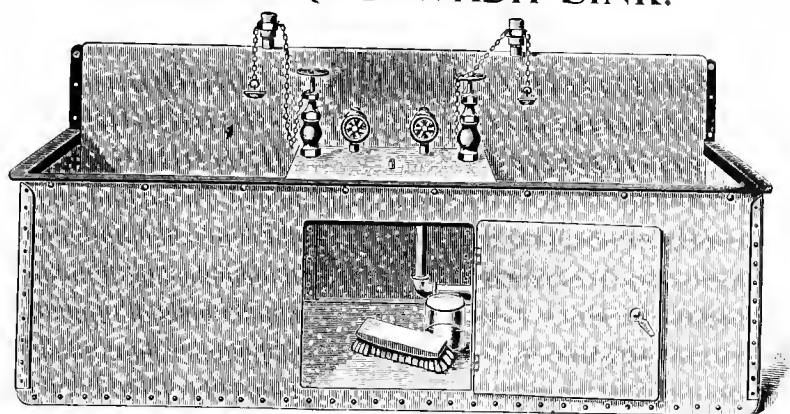


This cut represents Sterilizer placed in Ideal tank, also outside of tank showing how simple it is in construction and easily taken apart.

Specifications and Prices:

No. 1.	Length 3 ft. 6 in.,	capacity per hour	3,000 lbs.,	with Ideal tank,	\$22.00.	Without tank,	\$12.00.
" 2.	" 4 " 6 "	" " "	6,000 "	" " "	27.00.	" "	15.00.
" 3.	" 5 " 6 "	" " "	9,000 "	" " "	30.00.	" "	18.00.

THE CURTIS WASH SINK.



As shown, this new sink is made of heavily coated galvanized sheet steel, bound on all its edges with black angle steel, making a strong, durable sink.

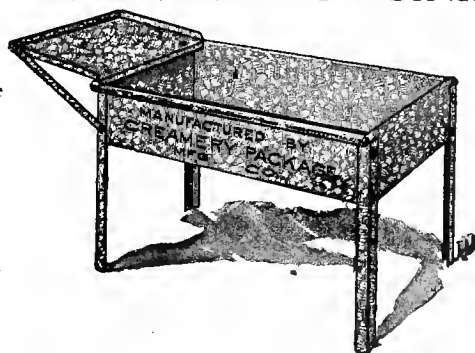
The small center platform divides the sink into two compartments, with hot and cold water in either or both, heated by Noiseless Water Heater. Jenkins' globe valves are used in its construction, preventing leaky pipes and valves, as is the case where cheap valves are used.

The platform used for steaming separator bowls or other articles, by the use of the steam jet shown, makes a handy closet for storage of brushes, soap or wash powders.

This sink, without legs, fastens to the wall by screws through the angle iron edge, doing away with the obstruction caused by sinks with legs or floor braces. Size 19 x 52 inches, 15 inches deep.

Price, with Valves and Connections, as shown, \$25.00.

THE IDEAL WASH SINK.



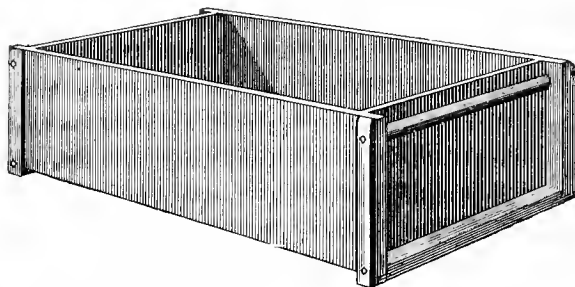
*Very
strong.*

*Will not rot,
shrink or
swell.*

	LENGTH.	WIDTH.	DEPTH.	PRICE.
No. 1	36 in.	22 in.	12 in.	\$10.00
No. 2	48 in.	24 in.	14 in.	12.00

WASH SINKS

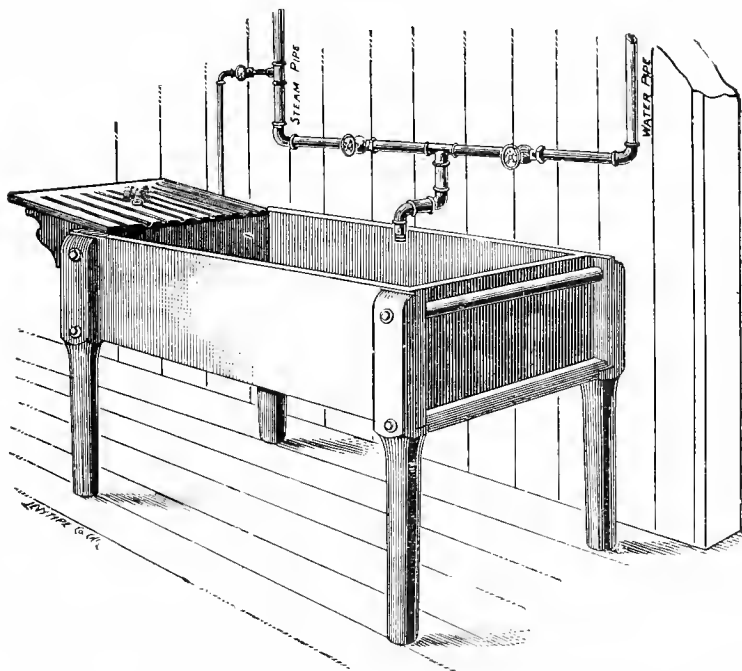
STATIONARY.



Our Stationary Wash Sink illustrated here-with is designed as a stationary attachment to the building. It is painted inside and out with Prince's paint. Pipe connections can be made the same as in the portable wash sink.

Price\$6 00

PORTABLE.



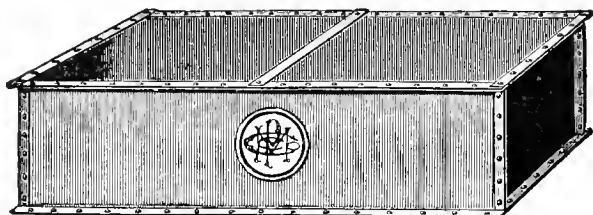
This illustration shows our Portable Wash Sink, with pipe connections. The steam and water pipes may be brought together in one outlet, furnishing water at any desired temperature by the simple adjustment of the valves. It will furnish boiling hot water without the noise which follows the turning of steam into cold water. The attachment on the left shows steam pipe coming up through the center of the board for steaming separator bowls, tinware, tubs, etc., after they have been used, and is a very convenient arrangement. The outlet can be made through iron pipe running through the floor into an outside drain, or in any other way desired. The sink is handsomely finished in the same style as our vats and churns, and lined with heavy galvanized iron, and will be found very convenient in a factory.

PRICE, not including connections.....\$8 00
 " including " 10 00

THE "IDEAL" GALVANIZED STEEL TANKS

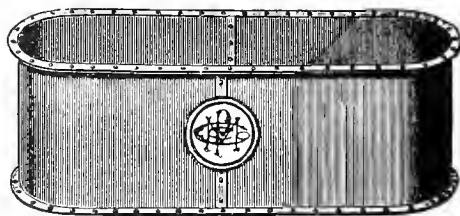
Are made of best annealed steel and heavily galvanized. All seams securely riveted between steel bars. Heavy steel angles for top rim. With ordinary care the "Ideal" galvanized steel tanks will last a life time. **Cannot leak.** Cannot burst by freezing. Cannot decay or rot. Always ready for use.

You cannot afford to waste time and money on Wooden Tanks, neither can you afford to purchase Steel Tanks which are in the experimental stage when you can buy the original, time-tried and reliable "Ideal" Galvanized Steel Tanks for the same money.



SQUARE ENDS

No.	Width	Height	Length	Capacity	Price	No.	Width	Height	Length	Capacity	Price
C28	2 ft.	1 ft.	8 ft.	3 3/4 bbls.	\$ 7 70	35	4 ft.	2 1/2 ft.	8 ft.	17 bbls.	\$20 90
28	2 "	2 "	8 "	7 1/2 "	12 10	36	4 "	3 "	8 "	23 "	25 30
C29	2 "	2 "	6 "	5 3/4 "	9 90	37	5 "	2 "	10 "	14 "	17 00
29	2 "	2 1/2 "	8 "	9 1/2 "	13 20	38	3 "	2 1/2 "	10 "	18 "	21 45
30	2 1/2 "	2 "	8 "	9 1/2 "	13 20	39	3 "	3 "	10 "	21 "	23 65
31	2 1/2 "	2 1/2 "	8 "	12 "	14 30	40	4 "	2 "	10 "	19 "	22 00
32	3 "	2 "	8 "	12 "	14 30	41	1 "	2 1/2 "	10 "	24 "	26 40
33	3 "	2 1/2 "	8 "	14 "	17 00	42	4 "	3 "	10 "	29 "	29 70
34	4 "	2 "	8 "	15 "	18 15						

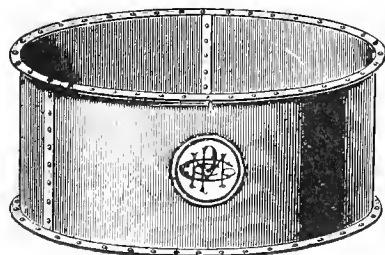


OBLONG TANKS

(ROUND ENDS)

No.	Width	Height	Length	Capacity	Price	No.	Width	Height	Length	Capacity	Price
B13	2 ft.	2 ft.	6 ft.	5 3/4 bbls.	\$ 9 00	21	4 ft.	3 ft.	8 ft.	23 bbls.	\$23 00
13	2 "	2 "	8 "	7 1/2 "	11 00	22	3 "	2 "	10 "	14 "	15 50
14	2 "	2 1/2 "	8 "	9 1/2 "	12 00	23	3 "	2 1/2 "	10 "	18 "	19 50
15	2 1/2 "	2 "	8 "	9 1/2 "	12 00	24	3 "	3 "	10 "	21 "	21 50
16	2 1/2 "	2 1/2 "	8 "	12 "	13 00	25	4 "	2 "	10 "	19 "	20 00
17	3 "	2 1/2 "	8 "	12 "	13 00	26	4 "	2 1/2 "	10 "	24 "	24 00
18	3 "	2 1/2 "	8 "	14 "	15 50	27	4 "	3 "	10 "	29 "	27 00
19	4 "	2 "	8 "	15 "	16 50	44	4 "	2 "	16 "	30 "	30 00
20	4 "	2 1/2 "	8 "	17 "	19 00						

ROUND TANKS



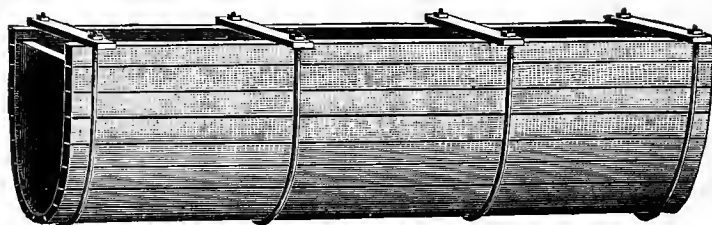
No.	Diam.	Height	Capacity	Price
1	4 ft.	2 ft.	6 bbls.	\$ 9 00
2	4 "	2 1/2 "	7 "	10 00
3	4 "	3 "	9 "	11 00
4	4 "	4 "	12 "	13 00
5	5 "	2 "	9 1/2 "	11 50
6	5 "	2 1/2 "	12 "	14 00
7	5 "	3 "	14 "	15 50
8	5 "	4 "	19 "	19 00
9	6 "	2 "	14 "	16 50
10	6 "	2 1/2 "	17 "	19 00
11	6 "	3 "	20 "	20 00
12	6 "	4 "	27 "	25 00
13	6 "	5 "	34 "	30 00

ALWAYS ORDER BY NUMBER

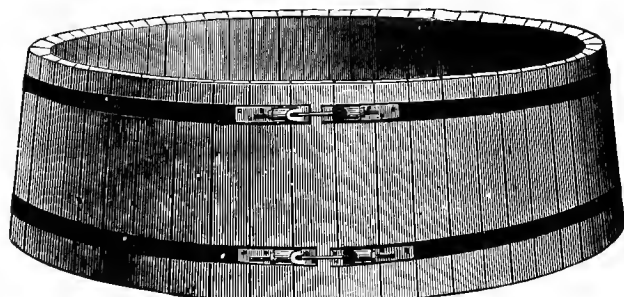
TANKS

HALF ROUND STOCK TANKS.

We make these tanks of 2 inch lumber, and joint them in the same manner as our round tanks. The hoops are made of round iron and the cross ties of oak. These tanks are made in a variety of sizes, and special sizes will be built to order.



Length, Feet.	Dimensions		Capacity		Approximate Weight, Pounds.	Prices.
	Breadth, Feet.	Depth, Inches.	Gallons.	Barrels.		
6	3	18	133	4 $\frac{1}{4}$	165	\$6 50
8	3	18	186	6	200	8 00
10	3	18	239	7 $\frac{3}{4}$	250	9 00
10	3 $\frac{1}{2}$	21	325	10	295	10 75
10	4	24	425	13 $\frac{1}{2}$	340	12 50
12	3	18	292	9 $\frac{1}{2}$	280	10 00
12	3 $\frac{1}{2}$	21	396	12 $\frac{3}{4}$	330	12 00
12	4	24	517	16 $\frac{3}{4}$	380	14 00
14	3	18	345	11	325	12 00
14	3 $\frac{1}{2}$	21	468	15	390	14 00
14	4	24	611	19 $\frac{1}{2}$	440	16 00
16	3	18	398	12 $\frac{3}{4}$	365	13 00
16	3 $\frac{1}{2}$	21	540	17 $\frac{1}{2}$	420	15 25
16	4	24	705	22 $\frac{3}{4}$	480	17 50
18	4	24	799	25 $\frac{3}{4}$	545	20 00



ROUND TANKS.

The prices on round tanks include nothing but the staves, bottom, dowel pins, and iron hoops. We set up every tank, and mark each piece and every hoop. Scale drawings, showing foundation, support, and method of frost proofing will be furnished all purchasers free of charge.

MADE OF TWO INCH LUMBER.

Length of Stave, in Feet.	Diameter of Bottom, in Feet.	Number of Hoops.	Capacity in Gallons.	Approximate Weight in Pounds.	Price, with Lug Hoops.
4	4	4	271	275	\$13 50
2	6	2	280	275	12 00
6	4	5	425	400	17 50
3	6	3	541	400	21 75
2	10	2	818	600	24 00
5	6	4	839	525	22 50
3	8	3	856	550	30 00
4	7	4	905	600	24 00

SIEVES

HORSE HAIR

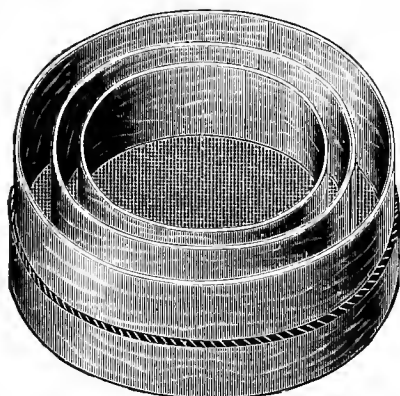
FOR STRAINING BUTTERMILK

6 in. in diameter	\$0.40
8 " " "	.50
10 " " "	.60
12 " " "	.75
13 " " "	.85

BRASS WIRE

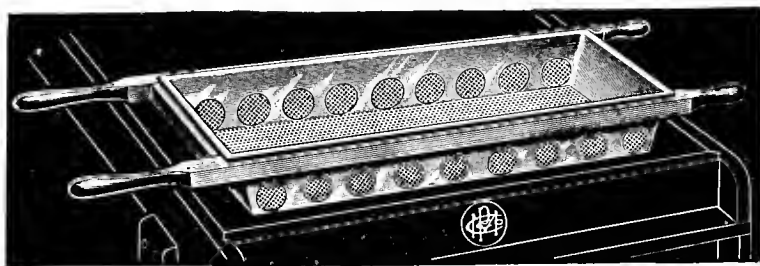
FOR SIFTING SALT

12-in. brass wire, 20-mesh, each.....\$0.60



STRAINERS

VAT



This strainer is used for straining cream or milk into the receiving vat at the factory, and is an article that every creamery-man should have. It is made of heavy tin with a perforated bottom. The frame is made of hardwood, and so constructed that it allows the strainer to set into the vat only about two inches, giving it this advantage that the vat can be filled full. It is made light and durable, and is easy to handle and clean, and will fit any sized vat.

Price \$4.00

SQUARE

FOR COMBINED CHURNS

Price.....each, \$2.50

In ordering this strainer state style of Churn and also length and width of opening.

McLAREN'S BUTTERMILK STRAINER



Made to fit the drain of all factory Churns. The neatest and best.

Price, each.....\$1.00

STRAINERS



LAKIN'S CHURN STRAINER.

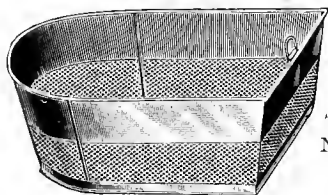
This strainer is used to strain the cream into the churn before churning, and can be furnished any size. It is made very durable from pressed tin to fit any cover. If any size is wanted not given below, send diameter of churn opening.

PRICE.

No. 1, creamery size.....	\$1 30
No. 2, " "	1 50

HANDY CHURN STRAINERS.

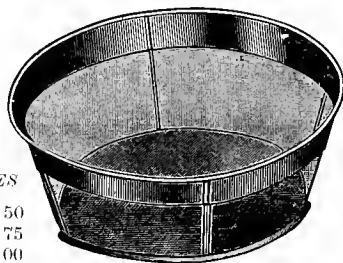
This style of strainer is preferred by many, as both sides and bottom are made of perforated tin, allowing the cream to pass through more readily.



Oblong.

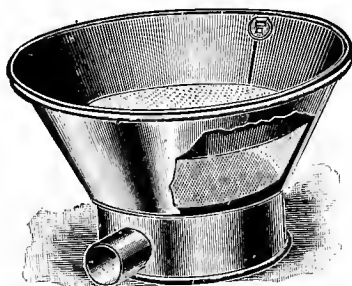
SIZES AND PRICES

No. 1, 12 inch..	\$1 50
" 2, 14 " ..	1 75
" 3, 16 inch..	2 00
" 4, 18 " ..	2 50



Round.

VERMONT BUTTERMILK STRAINER.

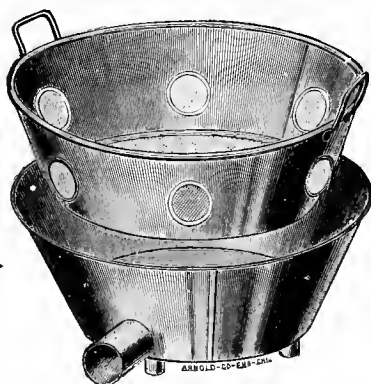


This strainer is very convenient in creameries for straining the buttermilk as it runs from the churns to the drain. The inner pan is made of perforated tin on the bottom and half way up the sides. It is placed on the floor under the churn outlet; is connected with pipe to the drain. The strainer catches any particles of butter that run out. The strainer is lifted out and the butter turned back into the churn.

Price..... \$2 00

Pipe for extension, per foot ... 25

ROE'S COMBINED CHURN AND BUTTERMILK STRAINER



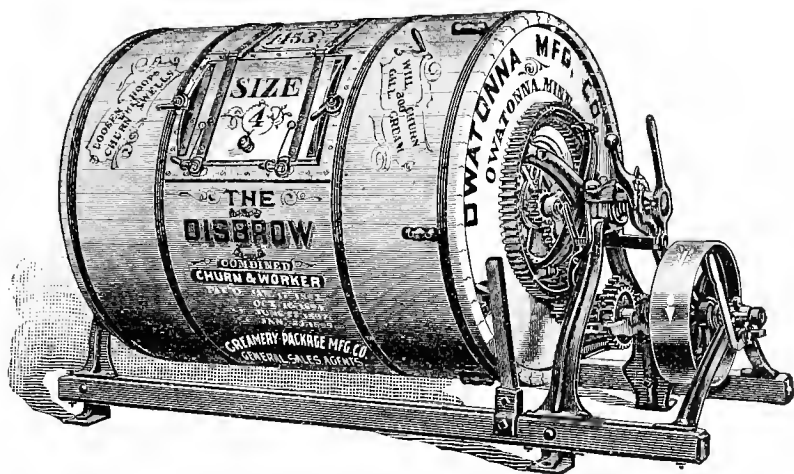
This strainer consists of two parts, which may be used separately or together. For straining the cream into the churn, the upper half only is used. For straining the buttermilk use the two parts together, and by means of a pipe attached to the spout conduct the buttermilk to the drain.

Price, complete, \$2. 00

Double the lists to obtain price on above goods furnished in Tinned Copper.

THE **DISBROW**

COMBINED CHURN AND WORKER.



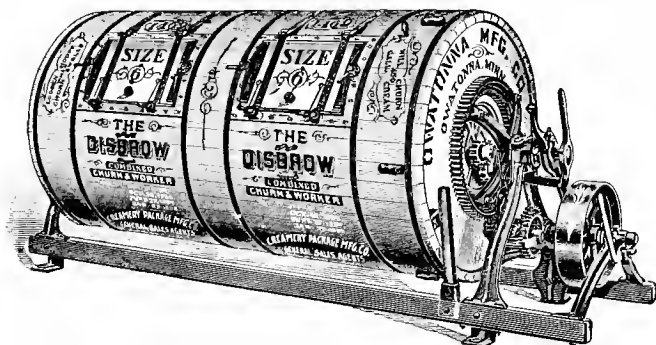
It is doubtful whether any invention in the creamery world has ever proved to be such an instantaneous and complete success as the Disbrow Combined Churn and Worker. Only six years old, yet over fifteen hundred machines have been sold, the demand tests the capacity of the factory, and orders for this machine come not only from all parts of the United States, but from England, Denmark, Sweden, and even far away Australia.

It is not hard to understand why the Disbrow has attained such a wonderful popularity. It was the first combined machine ever put upon the market, and is to-day the only combined machine universally acknowledged to be a success, and all that its manufacturers claim for it. The principle of working the butter in the churn was first put to a practical application in this machine; and the method used in the Disbrow is so simple that a child can understand it—yet so perfect that nothing has ever been invented to equal it.

The value of the Disbrow is best shown by the fact that for the first three years after it was put upon the market the manufacturers

THE DISBROW

COMBINED CHURN AND WORKER



SIZES 5, 6 AND 7 HAVE DOUBLE DOORS.

were obliged to spend thousands of dollars to defend their patents from unscrupulous competitors. But the Disbrow has been as successful in the courts as in the creameries, and stands to-day, the unchallenged king of combined churns.

Effecting a saving in time, labor, space, shafting, pulleys; keeping the butter at an even temperature in hot weather, while working it enclosed and protected from dirt, flies and foul odors, the Disbrow will in one year's time make a change in the "profit and loss" account of many a creamery, that will open the eyes of the manager and board of directors.

The Disbrow has been a maker of prize-winning butter from the beginning; and the list of high scores and prizes won on butter made in this machine would fill a book. At two of the last three meetings of the National Buttermakers' Association, the butter which took first prize each time was made in a Disbrow, both tubs scoring 98 points—the highest score ever made at one of the national conventions.

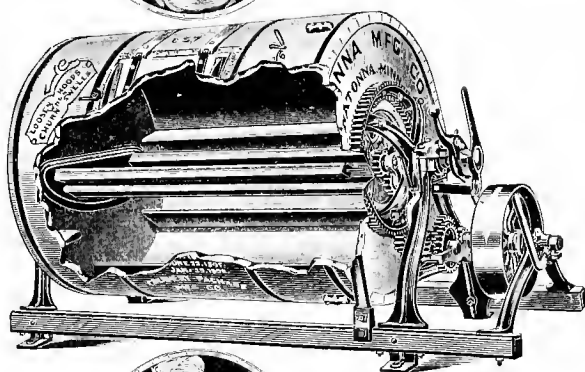
The Disbrow is manufactured of the very best material obtainable, by the most skilled workmen; improvements have been added from time to time; and it is fast supplanting every other kind of churn and worker. Over five times as many Disbrow machines have been sold as of any other combined machine; and today, nearly seventy-five per cent of all the combined churns sold are Disbrows. It is little wonder that it is called "The Churn That Works."



THE
DISBROW



SOME
SAY
IT
DOES
ALL
WE
CLAIM



OTHERS
SAY
WE
DO
NOT
CLAIM
ENOUGH

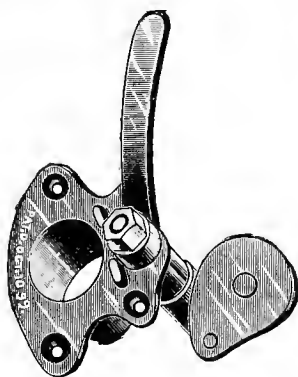


The New DISBROW Churn Gate
Closes on Inside End

Always Perfectly Clean

PRICE, \$2.00

Furnished Free on All Churns Hereafter



DISBROW

Sizes, Specifications and Prices.

SIZE.	Full capacity	Will churn.	Will work.	Length over all.	Diameter of bbl.	Length between center of feet.	Width between center of feet.	Shipping Weight.	PRICE.
	GAL.	GAL.	LBS.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	LBS.	
2	50	35	70	4 6	2 5	4 4	3 0	400	\$ 60.00
B2	50	35	70	4 6	2 5	4 4	3 0	400	80.00
A2	100	75	150	5 10	3 3	3 5	2 9	600	120.00
A3	145	110	220	7 1	3 3	4 8	2 9	800	130.00
3	284	220	440	7 3	4 1	5 0	3 0	1250	140.00
4	392	300	600	8 6	4 1	6 3	3 0	1450	155.00
5	490	375	750	9 9	4 1	7 6	3 0	1600	170.00
6	596	450	900	11 0	4 1	8 9	3 0	1700	190.00
7	690	500	1000	12 3	4 1	10 0	3 0	1800	225.00

PULLEYS.

Diameter, Face and Speed.

SIZE.	Style of Pulley.	Diameter.	Face.	Speed per minute.
2.....	Tight & Loose Clutch	12 in.	3 in.	160 revolutions
B2.....		10 "	3 "	160 "
A2 and A3.....		13 1/2 "	4 "	180 "
3 and 4.....		19 "	5 "	165 "
5, 6 and 7.....		22 "	6 "	165 "

PRICE LIST OF REPAIRS FOR DISBROW CHURNS,

SIZES 2 AND B2.

No.	Name	Price	No.	Name	Price
44	Hand wheel screw.....	1.00	79	Internal Gear	3.00
60	Leg on gear end.....	\$3.25	80	Support for long Box.....	.75
82	" " off "	2.75	B80	" " " "	.80
62	Long Box	2.50	83	Drive Pinion	.75
B62	" "	3.25	84	Pulley 3 in. x 12 in.....	2.80
63	Lever to start rollers.....	.75	85	Collar on 1 in. shaft.....	.50
B64	Gear Spider	2.75	87	Ball latch	.90
65	Hoop Clamp	.75	88	Shift Lever	1.75
67	Balance Weight	.75	90	Gear Shaft Box	1.00
68	Long Box Cap.....	1.00	B90	" " " " Frame.....	1.50
B68	" "	1.00	92	Friction Arm	2.00
60	Lower Short Box.....	.50	93	Pulley 3 in. x 10 in. and gear	4.25
70	Upper " "	.50	94	Strap under pulley hub.....	.25
71	Cross-head, gear end.....	2.00	B30	Double shifting gear.....	1.25
72	Roller gear	1.25	B31	Clutch gear on main shaft...	.75
73	Hand wheel nut.....	.75	14	Door Button	.30
74	Ring Spider	2.25		Drive shaft 1 in. x 15 1/2 in....	1.50
75	Door Frame	2.25		" " 1 in. x 13 in....	1.50
76	Loose Head	1.75		Cross-head shaft 1 1/4 in. x 7 1/4 in.	1.75
77	Packing Ring	1.50		Cross-head shaft 1 1/4 x 10 1/2 ...	1.80
78	Glass Ring	.25			

PRICE LIST OF REPAIRS FOR DISBROW CHURNS,

SIZES A 2 AND A 3.

No.	Name	Price	No.	Name	Price
H 1	Large Driving Gear.....	5.00	140	Lever to start rollers.....	1.50
102	" Ring Spider.....	0.00	152	Cap Box for Pulley shaft..	.75
A102	" " ".....	6.00	153	Bridge Tree	1.50
3	" Gear ".....	6.00	M 54	Reducing Gear Lever.....	1.75
104	Loose Head	2.90	LT54	" " " Latch.....	.25
106	Cross Head, gear end.....	2.75	T 55	Starting Lever	1.00
107	" " off end.....	2.75	T 56	Slide to move Pulley.....	.50
108	Packing Ring	2.50	157	Slide to move Reducing Gear	.50
110	Single Roller Gear.....	1.05	158	Clutch for Fork Lever.....	2.50
111	Small intermediate gear....	1.50	A158	" " ".....	2.50
112	Large " ".....	1.75	LT58	Malleable Fork for Lever..	.80
113	Door Frame	2.90	W58	" " ".....	.80
14	" Button	.30	161	Stuffing Box	.70
R 14	" ".....	.30	162	Stop on Barrel.....	.40
L 14	" ".....	.30	163	" " Girt.....	.40
115	" Cleat	.25	T 64	Malleable Hinge on Door..	.50
116	Leg on gear end.....	4.25	T 65	" " " Barrel.....	.50
117	" " off end.....	3.75	164	Ball Lever	2.00
A117	" " ".....	3.75		Pulley Shaft $1\frac{1}{4} \times 27$	2.00
118	Outside Leg, gear end.....	3.00		Cross-head shaft $1\frac{1}{2} \times 12\frac{1}{2}$	1.80
119	Outside Leg Box	1.00		" " $1\frac{1}{2} \times 14\frac{1}{2}$	2.25
T 19	" " ".....	1.00		Short Shaft $1 \times 5\frac{1}{2}$	.75
120	Box on pulley shaft.....	1.00		Pulley Shaft Collar $1\frac{1}{4}$ hole	.75
121	Friction Arm with Pinion..	2.50		Steel Clamp Pin	.40
A 23	Long Lock Lever	2.65		Butter Rolls for size A 2 each	6.00
123	" " ".....	2.65		Butter Rolls for size A 3 each	6.10
124	Bracket for lever.....	.75		Roller Shelf for size A 2 each	1.00
125	Clamp Hand Wheel.....	1.00		Roller Shelf for size A 3 each	1.10
27	Support for shift rod.....	.25		Flights for size A 2, each..	1.40
129	Pulley $4 \times 13\frac{1}{2}$	3.50		Flights for size A 3, each..	1.50
130	Pinion (clutch) slow down..	2.25		Wood cross-head	1.60
131	Double Pinion	2.25		Roller Shelf Support	1.40
132	Drive ".....	1.75		Door, wood, painted.....	.60
W33	Plate under slide.....	.25		$\frac{1}{2}$ in. cork packing, per foot	1.10
136	Box-Bottom, gear end.....	.75			
137	" Cap ".....	1.50			
A 37	" " ".....	1.50			
138	" Bottom, off end.....	1.75			
139	" Cap, off end.....	.75			

PRICE LIST OF REPAIRS FOR DISBROW CHURNS,

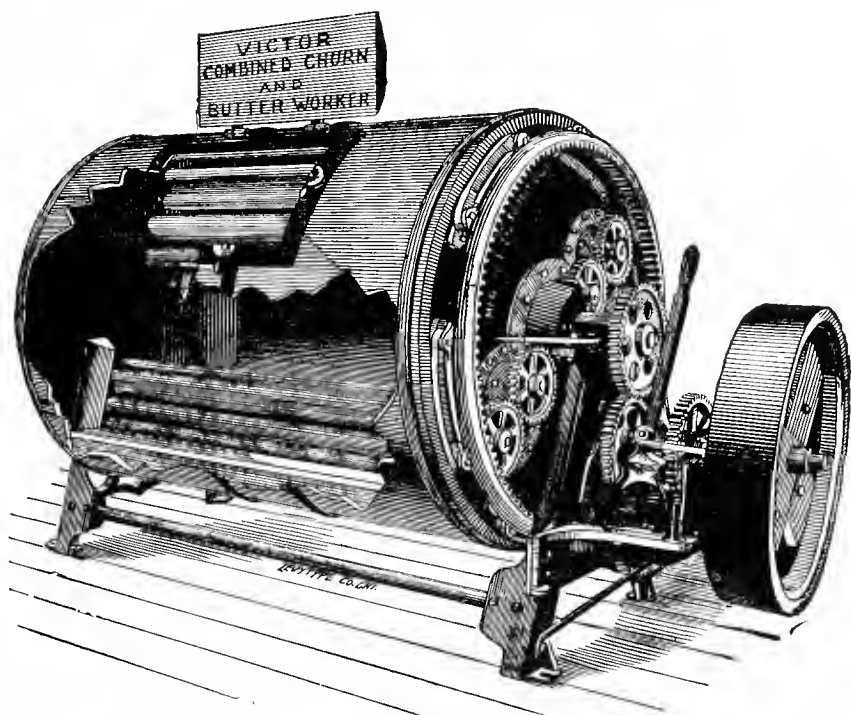
SIZES 3, 4, 5, 6 AND 7.

No.	Name	Price	No.	Name	Price
H 1	Large Driving Gear.....	5.00	8	Packing Ring	2.50
T 1	" " ".....	7.50	10	Single Roller Gear.....	1.75
2	Ring Spider	6.50	T 10	" " ".....	1.65
T 2	" " ".....	7.25	11	Double " ".....	2.50
R 2	" " ".....	7.25	T 11	Small Intermediate Gear....	1.50
3	Gear Spider	6.00	12	" " ".....	1.25
T 3	" " ".....	7.75	T 12	Large " ".....	2.00
4	Loose Head, gear end.....	3.00	13	Door Frame	3.00
M 4	" " ".....	3.00	T 13	" " ".....	3.00
5	" " off end.....	4.00	C 13	" " ".....	3.00
6	Cross Head, gear end.....	2.75	14	" Button	.30
H 6	" " ".....	2.75	X 14	" " ".....	.30
T 6	" " ".....	3.75	R 14	" " ".....	.30
7	" " off ".....	2.75	L 14	" " ".....	.30
H 7	" " ".....	2.75	XR14	" " ".....	.30

No.	Name	Price	No.	Name	Price
N L 14			44	Hand wheel screw, old style.	1.25
15	Cleat for Door	.25	H 44	" " " for 3 & 4	1.50
16	Leg on gear end	4.50	46	Latch for Hand Wheel	.25
H 16	" " " "	4.50	47	Shifter for Hand wheel	2.25
T 16	" " " "	6.50	48	" " Screw Top	1.00
17	" " off end	3.75	49	" " Bottom	1.00
T 17	" " " "	4.75	50	Nut for H 44	1.00
217	" " " "	4.75	51	Malleable Clamp	.75
317	" " " "	4.75	52	Cap Box for H 20	.75
18	" " on Outside	1.75	T 52	" " Pulley Shaft	.75
T 18	" " " "	3.25	T 53	Bridge Tree	1.50
19	Box on Outside Leg	1.00	C 53	" " " "	1.50
T 19	" " " "	1.00	T 54	Reducing Gear Lever	1.75
20	Bridge Tree	3.00	M 54	" " " "	1.75
H 20	" " " "	3.00	LT 54	" " " Latch	.75
220	Box on Pulley Shaft	1.00	T 55	Starting Lever	1.00
21	Friction Arm with Pinion	2.50	T 56	Slide to move Pulley	.50
T 21	" " " "	2.50	LT 56	" " " "	.50
C 21	" " " "	2.75	T 57	" " " Reducing	
C 22	" " " "	3.50		Gear	.50
22	Friction Arm	2.25	T 58	Clutch for Fork Lever	2.75
23	Long Lock Lever	2.75	H 58	" " " "	2.75
223	" " " "	2.75	LT 58	Fork for Lever (malleable)	.80
24	Bracket for Lever	.75	W 58	" " " "	.80
224	" " " "	.75	T 59	Pulley, 6 x 22	6.75
A 24	" " " "	.75		Washer for cross-head stud	.10
25	Clamp Hand Wheel	1.00	T 61	Stuffing Box	.75
26	Catch Lever	.25	T 62	Stop on Barrel	.40
27	Support for Shift Rod	.25	T 63	" " Girt	.40
29	Pulley 5 x 19	5.50	1 64	Malleable Hinge on Door	.50
T 29	" 5 x 19, new	5.75	T 65	" " " Barrel	.50
30	Pinion (clutch) slow down	1.50	164	Ball Lever	2.00
H 30	" " " "	1.50		Pulley Shaft 1 1/2 x 30	2.00
T 30	" " " "	2.50		" " 1 1/2 x 30 new	2.00
31	Double Pinion	2.00		" " 1 1/2 x 29 new	2.00
T 31	" " " "	3.00		Steel Clamp Pin	.40
H 31	Double Pinion	2.00		Butter Rollers for size 3, each	6.20
32	Drive Pinion	1.25		" " " " 4, " "	6.40
T 32	" " " "	1.75		" " " " 5, " "	6.60
33	Cap to hold No. 56	.75		" " " " 6, " "	6.60
34	Dog and ring	1.50		" " " " 7, " "	7.00
35	Holder for Hand Wheel	.75		Roller Shelves for size 3,	
36	Box Bottom gear end	.75		each	1.20
H 36	" " " off " "	.75		Roller Shelves for size 4,	
T 36	" " " gear end	1.00		each	1.30
37	" " Cap " "	.75		Roller Shelves for size 5,	
T 37	" " " " "	1.25		each	1.40
237	" " " " "	1.75		Roller Shelves for size 6,	
38	Box Bottom off end	.75		each	1.50
T 38	" " " " "	2.00		Roller shelves for size 7,	
39	" " Cap " "	.75		each	1.60
H 39	" " " " "	.75		Flights for size 3, each	1.60
T 39	" " " " "	1.00		" " " " 4, " "	1.70
40	Lever to start Rollers	1.50		" " " " 5, " "	1.80
240	" " " " "	1.50		" " " " 6, " "	1.90
L 40	" " " " "	1.50		" " " " 7, " "	2.00
41	Glass Ring	.25		Wood Cross-head	1.60
42	Clutch Hub	.60		Roller Shelf Support	1.40
43	Hoop Clamp	.80		Door, wood, painted	.60
				1/2 in. cork packing, per foot	.10

Please give the size and shop number of your churn when ordering repairs.
Also the figures (or letters) on the piece wanted. This will save much
delay in filling orders.

“VICTOR.”



SECTIONAL VIEW.

The above cut shows the “Victor” with one door, open to exhibit the internal works, with its four rollers in two sets with which all the work of churning and working the butter is done.

STYLES 3, 4, 5, 6, 7, 8, 9 and 10.

All “Victor” Churns above size No. 6 are provided with two doors. No. 6 and all smaller sizes with one door. In ordering extra churn doors carefully state whether it is a flat or an oval door that is wanted, and give the exact length and width of the door the new one is to replace.

The “Victor” Combined Churn and Butter Worker is no longer an experiment. It has abundantly proven its high qualities as a first-class butter-making machine.

The running gear of this machine is large, strong and simple, with but a minimum of friction, which promises durability and a great saving of repairs.

It is an exhaustive churner, being so arranged that the working rollers give marked assistance in the process, and the product it presents when its work is finished, speaks more loudly and positively of its high qualities than any combination of words can do.

For simplicity of construction and ease of manipulation, in strength of gearing, powers of endurance and perfection of its work it has no superior; and in the

rapidity of its butter working and the ease with which its product can be removed, it is a delight to every butter-maker who uses it.

The construction of the "Victor" is such that in working, the entire mass of butter passes twice between the rollers at every revolution of the drum, hence it is a very quick worker.

The working rollers which are stationary in churning, are put in motion ready for use when the working process is to begin, by a simple movement, and its novel method of working the butter is so complete that the grain is left intact, and the work is performed in so short a time as to cause astonishment to those who witness its operations.

When the working is finished, by a slight manipulation of gear the rollers are fixed and become elevators, which, by a half turn of the churn bring the butter in a mass to the proper position for removal, thus avoiding the necessity of reaching far into the churn in the act of removing the butter. When the rollers are thus used they bring up the entire mass of butter, leaving none in the bottom of the churn.

The "Victor" in its inside construction has no machinery whatever except its four rollers, in two sets, always bearing the same relation to each other and to the drum, in the heads of which they have their bearings, and with which they always move when the churn is in motion whether they are revolving on their own bearings, as in the working of butter, or are fixed as when churning, or elevating the butter for removal from the churn.

REMOVING THE BUTTER.

To remove the butter from the "Victor," set the rollers, revolve the churn until the door is in the proper place, and the rollers, acting as elevators, will hold the butter in position for easy removal. It will be found that when the churn is stopped for removing the butter, it will remain at the place it is stopped without props or braces, or any other aids to hold it in position. It supports itself regardless of the position of the butter.

SIZES AND PRICES OF FACTORY CHURNS.

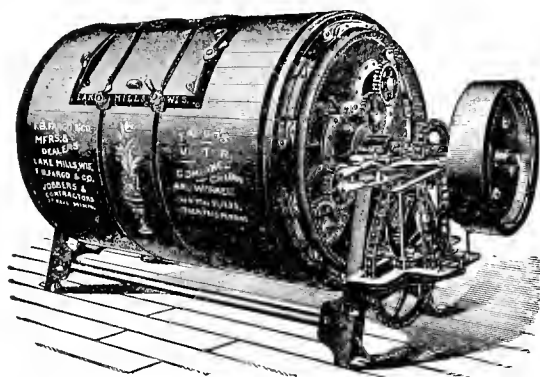
No.	Diameter.	Length Outside.	Length Over All.	Capacity in pounds.	Shipping Weight.	Price.
3.....	4 ft. 2 in.	4 ft. 10 in.	8 ft.	50 to 300	1600	\$130.00
4.....	4 ft. 2 in.	5 ft. 6 in.	8 ft. 8 in.	50 to 450	1700	140.00
5.....	4 ft. 2 in.	6 ft. 2 in.	9 ft. 4 in.	50 to 550	1800	150.00
6.....	4 ft. 2 in.	6 ft. 10 in.	10 ft.	100 to 650	1900	160.00
7.....	4 ft. 2 in.	7 ft. 6 in.	10 ft. 8 in.	100 to 750	2000	170.00
8.....	4 ft. 2 in.	8 ft. 2 in.	11 ft. 4 in.	100 to 825	2100	180.00
9.....	4 ft. 2 in.	8 ft. 10 in.	12 ft.	100 to 900	2200	190.00
10.....	4 ft. 2 in.	9 ft. 6 in.	12 ft. 8 in.	100 to 1000	2300	200.00

PULLEYS.

DIAMETER, FACE AND SPEED.

Size of Churn.	Style of Pulley.	Diameter.	Face.	Speed per Minute.
No. 3.....	Clutch	30 inches	6 inches	110 to 120
No. 4.....	Clutch	30 inches	6 inches	110 to 120
No. 5.....	Clutch	30 inches	6 inches	110 to 120
No. 6.....	Clutch	30 inches	6 inches	110 to 120
No. 7.....	Clutch	30 inches	6 inches	110 to 120
No. 8.....	Clutch	30 inches	8 inches	110 to 120
No. 9.....	Clutch	30 inches	8 inches	110 to 120
No. 10.....	Clutch	30 inches	8 inches	110 to 120

“VICTOR” DAIRY COMBINED CHURN.



STYLE 1 AND 2 FOR LARGE DAIRIES OR SMALL FACTORIES.

The drum of this Churn, like all Victor churns, runs at two speeds, but the rollers only run at one. The rollers cannot be run while churning. This Churn is operated from one end only, and in changing from churning to working speed it is impossible to break the Churn in moving the levers.

Large dairies or small factories will find in this churn a strong, reliable machine just fitted to their use.

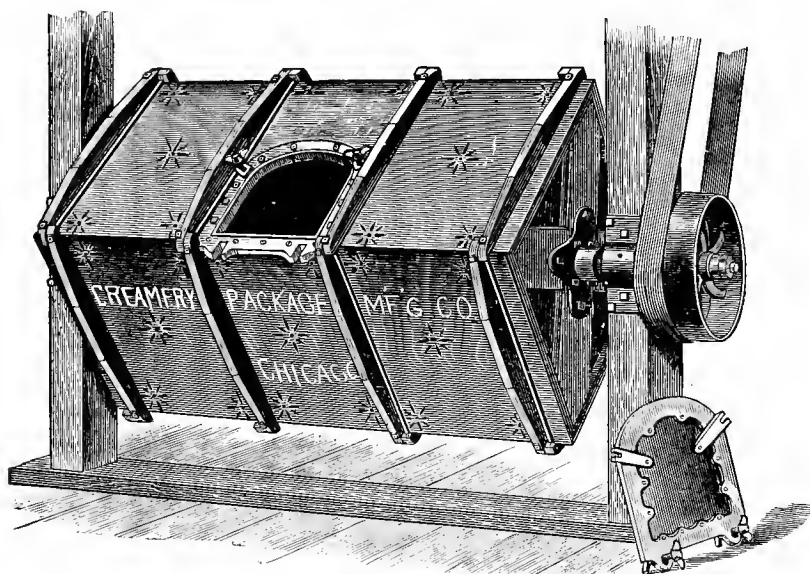
It does its work completely down to the smallest size and puts the small dairyman on an even footing with his factory neighbor in the quality of butter produced.

These churns have 20-inch clutch pulley with 4-inch face, speeded at 160.

SIZES AND PRICES.

No.	Diameter.	Length Outside.	Length Over all.	Capacity in pounds.	Shipping Weight.	Price.
1	3 ft. 4 in.	3 ft. 6 in.	5 ft. 9 in.	20 to 150	500 lbs.	\$110 00
2	3 ft. 4 in.	4 ft. 2 in.	6 ft. 5 in.	20 to 200	600 lbs.	120 00

SQUARE BOX CHURNS



SIZES AND PRICES MADE IN CEDAR OR ASH

SIZE	Will Hold	Will Churn	Inches Square Outside	Inches Long Outside	PRICE
No. 1	100 gallons	50 gallons	34	33	\$27 00
" 1½	150 "	75 "	34	44	32 00
" 2	200 "	100 "	34	55	36 00
" 2½	250 "	125 "	34	66	40 00
" 3	300 "	150 "	34	76	45 00
" 3½	350 "	175 "	34	86	50 00
" 4	400 "	200 "	34	96	56 00
" 4½	450 "	225 "	34	106	62 00
" 5	500 "	250 "	34	116	68 00

Churns without pulleys, list, less.....\$2 75

Cedar Churns furnished with Babbited boxes. Pine and ash without Babbited boxes.

PINE

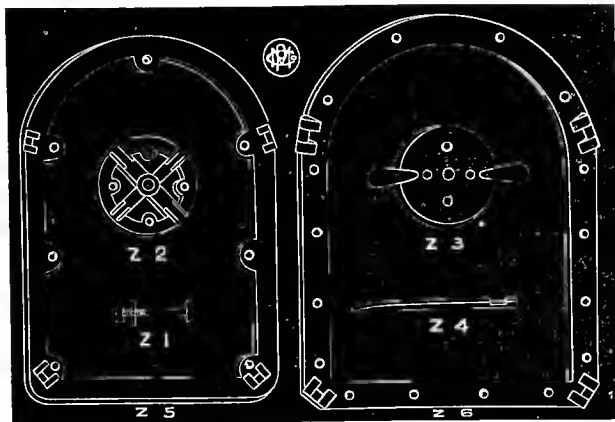
With Tight and Loose Pulleys

100 gallon churn, without frame ..	\$24 00	350 gallon churn, without frame ..	\$45 00
150 " " " " ..	28 00	400 " " " " ..	50 00
200 " " " " ..	32 00	450 " " " " ..	55 00
250 " " " " ..	35 00	500 " " " " ..	60 00
300 " " " " ..	40 00		

COVERS AND RIMS—any style, Round or Oblong

Cover complete with churn rim.....	each,	\$5 00
" without churn rim.....	"	3 25
Churn rim without cover.....	"	1 75

In ordering churn covers or rims always give **make** and **size** of churn and **style** of cover, whether oblong or round. If oblong give both inside diameters of the churn rim. If round give the one diameter of rim, also state whether the cover only or the cover and rim are wanted



The above illustration represents the new style oblong cover that is generally used. It is a superior cover in many ways to any other style on the market.

COVER AND RIM EXTRAS—New Style Oblong

No. Z1.	Cover Bolt.....	each,	\$0 10	No. Z4.	Levers (4 in set).....	each,	\$0 15
No. Z2.	Lower Button.....	"	30	No. Z5.	Cover Rim.....	"	1 25
No. Z3.	Upper Button.....	"	30	No. Z6.	Churn Rim.....	"	1 75

OTHER STYLES OF COVERS AND RIM EXTRAS

We also furnish a complete line of extras of other styles of covers and rims. In ordering always specify **make** and **size** of churn, and style of cover, whether oblong or round. In ordering oblong churn rim extras, give the inside two diameters of same. In ordering oblong cover rims give the outside two diameters. In ordering round cover rims and churn rims, give one diameter in the same manner as above. In ordering all other cover extras give same information as regards style of cover, and also number on part if there is any.

COVER CORK

$\frac{1}{8}$ in. x $\frac{1}{2}$ in. (to replace the average cover with cork order 8 ft.)..... per ft., 5 cts

CHURN GUDGEONS—for Cedar Churn

1½ in. Short, each,	\$2 25;	Long.....	each,	\$2 75
1⅞ " " " "	2 50;	Long.....	"	3 00
1⅞ " " " "	3 00;	Long.....	"	3 50

For Other Styles

14-in. flange, with 1 1/2 in. shaft.....	per set,	\$6 50
11 in. " " 1 1/8 in. ".....	"	4 40
8 in. " " 1 1/8 in. ".....	"	4 00
6 in. " " 1 3/8 in. ".....	"	3 25

TIGHT AND LOOSE IRON CHURN PULLEYS

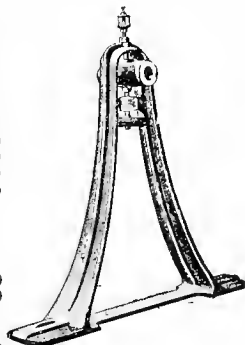
To fit any Style Churn

SIZES AND PRICES

20-in. diam., 4-in. face.....	\$10 50	12-in. diam., 4-in. face.....	\$6 50
18 " " 4 " "	9 00	14 " " 4 " "	7 00

IRON CHURN HANGERS

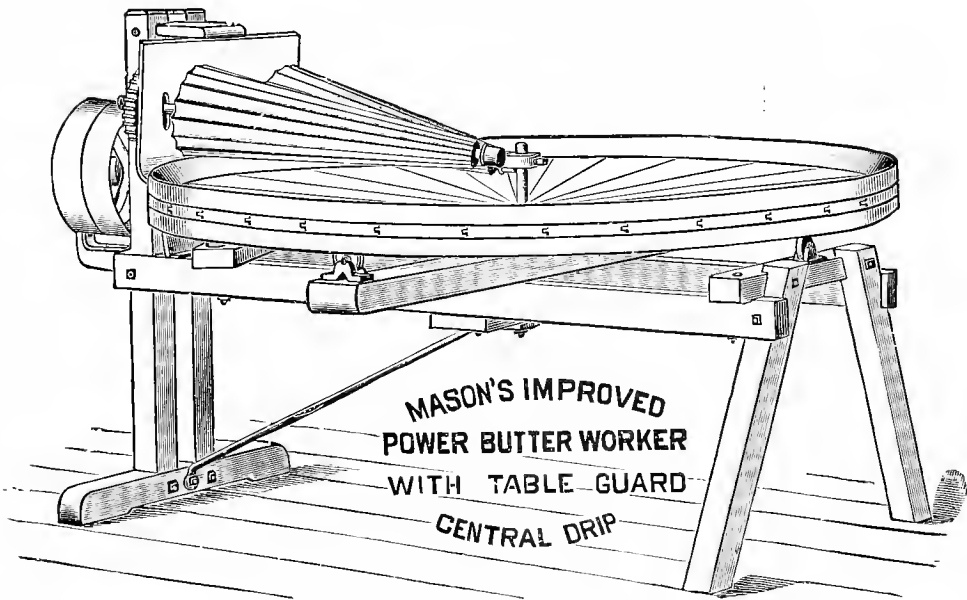
Price per pair, with oil cups.....	\$12 00
" " without oil cups.....	10 00



IRON CHURN HANGER

“MASON’S” IMPROVED POWER BUTTER- WORKER

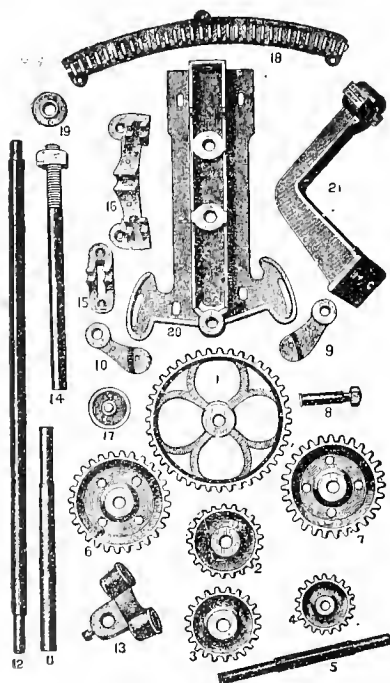
Number 2



PRICE

With black castings, plain table.....	Weight, 330 lbs.,	\$50 00
“ “ “ table guard.....	“ 335 “	55 00
“ galvanized castings, plain table.....	“ 330 “	60 00
“ “ “ table guard.....	“ 335 “	65 00
Size of pulley, 12x3 inches.		Revolutions per minute, 60.
Capacity, 200 lbs.		

EXTRAS FOR MASON'S POWER BUTTER WORKERS

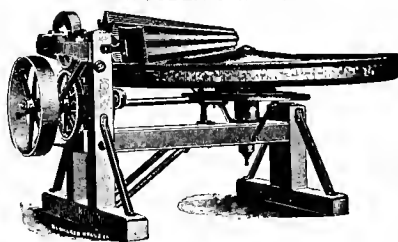


No.		Galvan- ized.	Plain
		Price.	Price.
1.	Large gear wheel, held to journal frame with No. 8.	\$1 20	\$1 00
2.	Center gear wheel, runs the pulley shaft No. 1.	90	75
3.	Lower gear wheel, fastened to shaft No. 5	90	75
4.	Pinion on short shaft, turns the table, connects with No. 18.	90	75
5.	Short shaft, fastened to Nos. 3 and 4.	90	75
6.	Gear wheel for right hand roller, stand behind the pulleys.	90	75
7.	Gear wheel, for left hand roller, stand behind the pulleys.	90	75
8.	Wrist pin, No. 1 gear wheels turn on.	90	75
9.	Left hand ear, holds No. 7 in place.	35	25
10.	Right hand ear, holds No. 6 in place.	35	25
11.	Pulley shaft, the pulleys and No. 2 on this shaft	75	75
12.	Roller shaft, both shafts alike, for corrugated rolls, each.	75	75
13.	Head block, holds the end of rolls, center of table.	1 25	1 25
14.	Center pin, holds No. 13.	50	50
15.	Single chair for the travelers, No. 17, each.	35	25
16.	Double chair for the travelers, No. 17.	60	50
17.	Travelers, run in Nos. 15 and 16, each.	12	10
18.	Track, about 30 pounds, per pound.	12	08
19.	Thimble, goes on the center pin, No. 14.	20	15
20.	Journal frame, the large casting, bolted to the frame.	3 50	3 00
21.	Elbow, holds No. 11 in place.	1 45	1 25
	Corrugated wood rolls, each.	2 25	2 25
	Tables with plain castings, each.		12 00
	Tables with galvanized castings, each.		13 00
	Tables with galvanized castings and raised sides, each.		18 00
	Pulleys	2 00	1 50

ORDER BY NUMBER.

SCHAUBLE'S NEW IMPROVED PATENT BUTTER-WORKER

WOODEN FRAME



SPECIFICATIONS AND PRICES ON THE NEW IMPROVED MACHINE

No. 1

Capacity	65 lbs.
Floor space occupied	3 ft. 2 in. by 3 ft. 6 in.
Height from floor to table	2 ft. 6 "
Diameter of table	4 ft.
Diameter of Driving Pulley	18 in.
Width of Face of Driving Pulley	3 "
Revolutions of Driving Pulley	40 to 50
Total shipping weight	650 lbs.

PRICE, COMPLETE, \$60.00

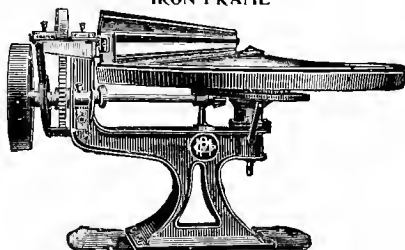
No. 3

Capacity	130 lbs.
Floor space occupied	3 ft. 7 in. by 3 ft. 6 in.
Height from floor to table	2 " 6 "
Diameter of table	5 ft.
Diameter of Driving Pulley	18 in.
Width of Face of Driving Pulley	3 "
Revolutions of Driving Pulley	40 to 50
Total shipping weight	675 lbs.

PRICE, COMPLETE, \$70.00

SCHAUBLE'S IMPROVED PATENT BUTTER-WORKER

IRON FRAME

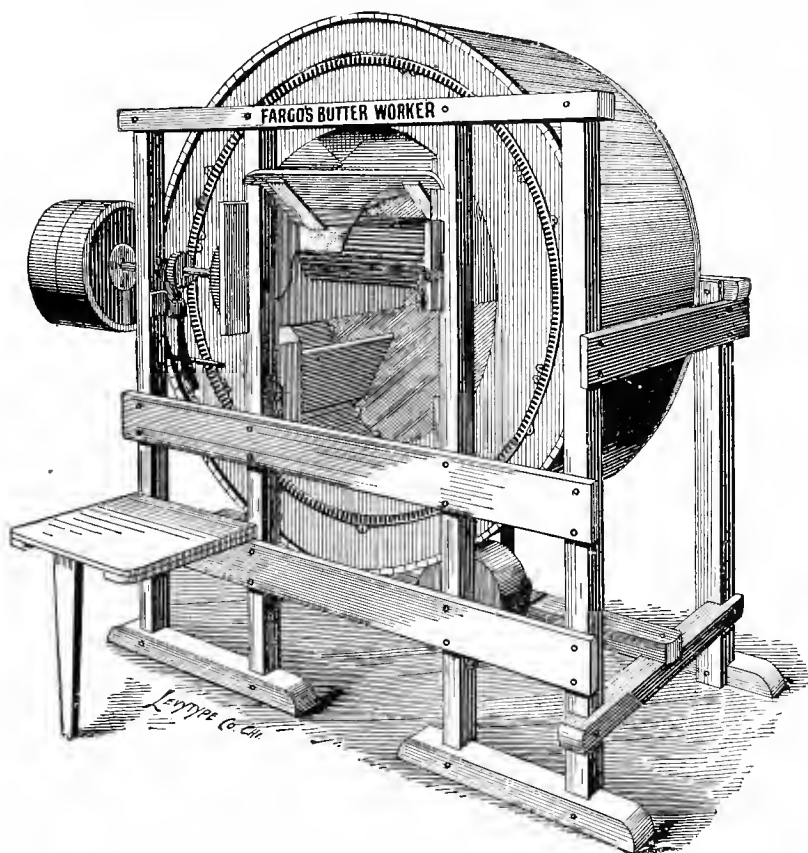


SPECIFICATIONS AND PRICE ON THE IMPROVED MACHINE

Capacity	100 lbs.
Floor space occupied	18 x 24 in.
Height from floor to table	2 ft. 6 in.
Diameter of table	4 ft. 6 in.
Diameter of Driving Pulley	18 "
Width of Face of Driving Pulley	3 "
Revolutions of Driving Pulley	40 to 50
Total shipping weight	600 lbs.

PRICE, COMPLETE, \$75.00

“ALPHA” DRUM BUTTER WORKER



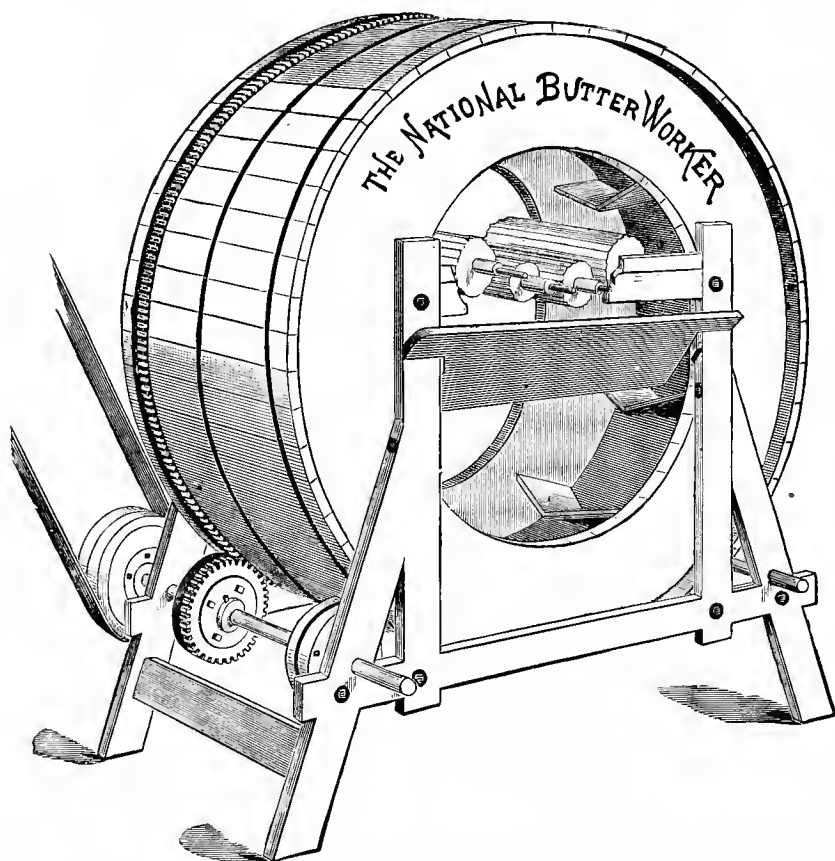
Size of pulley, 20x6. Revolutions per minute, 40. Capacity 300 lbs.
Weight, 700 lbs.

Price, each.....\$75 00

EXTRAS

Clutch Pinions	\$1 50
9-inch Gears.....	1 25
Pinion Lever.....	50
Gudgeon Levers.....	1 00
Shaft.....	75
Track, 8 sections to a set, per section.....	30
Wood Rollers, each	2 25
Inside Boxing.....	8 00
Iron Boxes, per set	75

“NATIONAL” DRUM BUTTER WORKER



Size of pulley, 18x4. Revolutions per minute, 50. Capacity, 300 lbs.
Weight, 820 lbs.

Price, each\$75 00

EXTRAS

No. 1, Large Gear Wheel	\$ 1 00
“ 23, Small “	75
“ 9, Large Sprocket Wheel.....	1 75
“ 10, Small “	1 50
“ 11, Driving Gear to Drum	1 20
“ 12, Track for Drum, per section	50
Shaft	1 25
Rollers and Collars for same.....	1 30
Rear Shaft	1 50
Sleeve, each	50
Wooden Wheels on Butter Carrier, each	25

We can also furnish full line of extras for the following Factory Butter Workers:

Fairlamb
Seaver

Fargo “Mason”
Barber “Mason”

Rice
Reid

Embree
Eureka

CREAM CARRYING CAN

"ROE'S UNION"

With heavy stamped metal bottom and galvanized iron jacket.

This can consists of two complete cans, one within the other, with about one-half inch space between the two, all around. The inner can is wound with several thicknesses of building paper, furred out with strips of wood to form four dead air spaces between the two cylinders, and stiffen and thoroughly support the outside cylinder or jacket.

SIZES AND PRICES

20-gallon.....\$8 50 30-gallon.....\$9 50

"HANEY'S JACKETED"

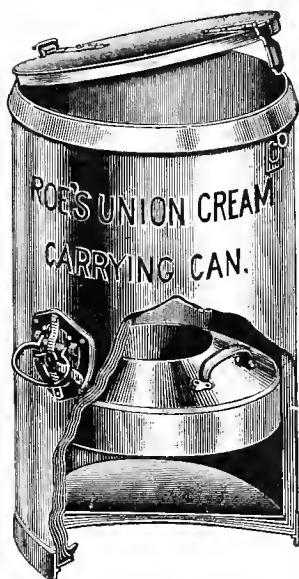
SIZES AND PRICES

20-gallon can.....\$8 50 30-gallon can.....\$9 50

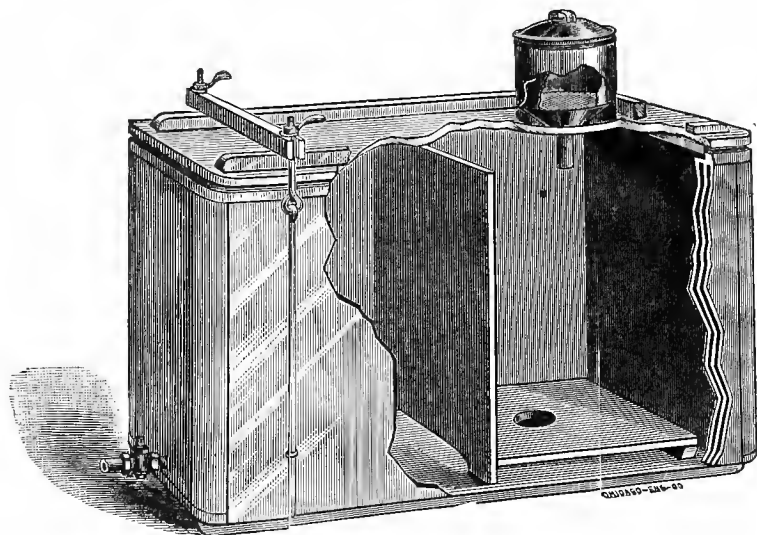
"CHERRY'S JACKETED"

SIZES AND PRICES

20-gallon can.....\$8 50 30-gallon can.....\$9 50



REFRIGERATOR TANK



SIZES AND PRICES

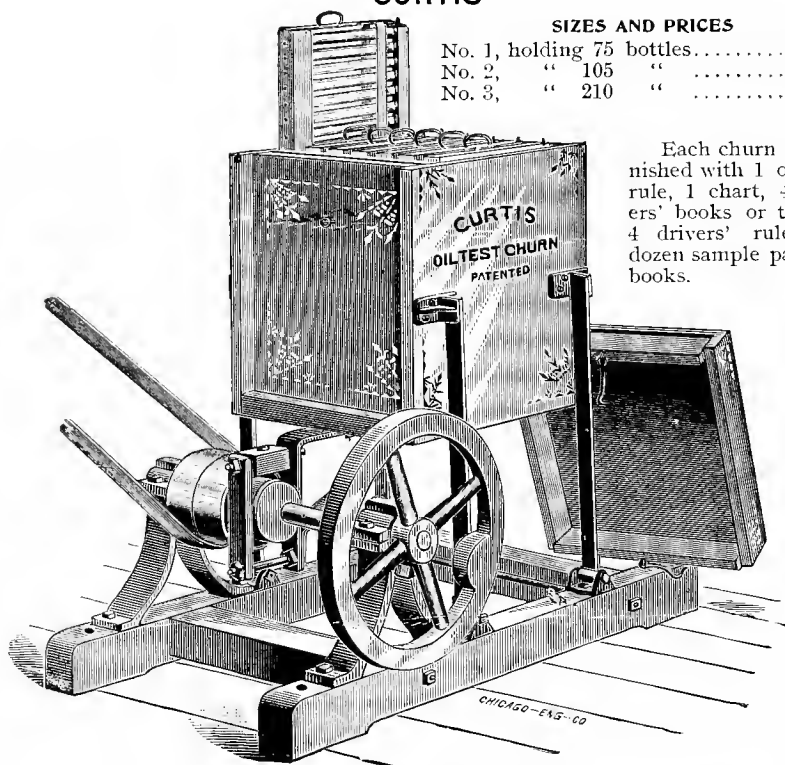
No.	Length.	Width.	Depth.	Gallons.	Price.
0	33 inches.	34 inches.	31 inches.	80	\$23 00
1	53 "	35 "	31 "	120	28 00
1½	"	"	"	160	32 00
2	76 "	36 "	30 "	180	35 00
3	88 "	37 "	31 "	250	45 00

OIL TEST CHURNS CURTIS

SIZES AND PRICES

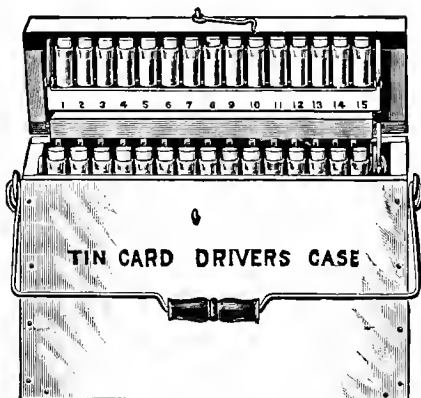
No. 1, holding 75 bottles.....	\$45 00
No. 2, " 105 "	55 00
No. 3, " 210 "	80 00

Each churn is furnished with 1 oil test rule, 1 chart, 4 drivers' books or tablets, 4 drivers' rules, $\frac{1}{2}$ dozen sample patrons' books.



DRIVERS' CASES

Drivers' case, wood cards, holding 45 bottles, for Curtis Churn.....	\$2 00
Drivers' case, wood cards, holding 30 bottles, for Curtis Churn.....	1 75
Drivers' case, tin cards, holding 30 bottles, for Curtis Churn.....	2 75
Drivers' case, tin cards, holding 45 bottles, for Curtis Churn.....	3 50
Price does not include bottles.	
Tin cards for Curtis Churn, each....	1 00
Wood cards for Curtis Churn "	50
Drivers' case for Fargo Churn, wood, holding 35 bottles.....	2 00
Drivers' case for Fargo Churn, iron, holding 35 bottles.....	2 50
Improved case and holder for Conqueror Churn.....	2 75
Case without holder.....	1 00
Bottle holders.....	1 75



PUNCHES

No. 1, each.....	\$2 00
No. 3, each.....	1 50

TEST CHURN SUPPLIES.

TEST TUBES.



9-inch plain test tubes, with corks, per hundred	\$6 00
9-inch lip test tubes, with corks, per hundred	6 00
10-inch plain test tubes, with corks, per hundred	6 00

TEST BOTTLE BRUSHES.



For hand use, each 20 cents, per dozen	\$2 00
Curtis' improved, each 25 cents, per dozen	2 50

DRIVERS' BOOKS AND TABLETS.

Tablets for Conqueror churn, per dozen	\$1 50
Books, stiff covers, per dozen	85
Books, paper covers, per dozen	90

PATRONS' BOOKS.

Common, per dozen	\$0 50
A and B, per dozen	75

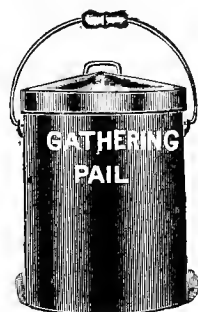
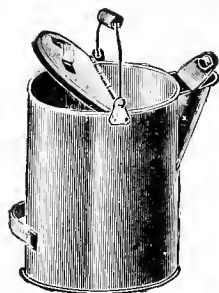
RULES.

Steel, eighths or tenths...per doz., \$1 00	Wood, tenths.....each, \$0 15
Wood, eighths each, 15	“ “ per doz., 1 50
“ “ per doz., 1 50	Oil test rules (Burchard) each, 50
	“ “ “ (A. and B.).... “ 24

ROE'S SKIMMING PAILS.

These pails are made of XXX tin, with cover and spout. They are designed to be used for cream gathering, and are so made that one inch in depth makes a standard gauge of cream.

Price.....\$2 50



DRIVERS' PAILS.

With supported bottom, each....	\$2 50
Without supported bottom.....	2 25

CORKS.

Corks, extra quality test tube, per gross.....	\$0 75
Corks, common test tube, per gross.....	40



RUBBER.

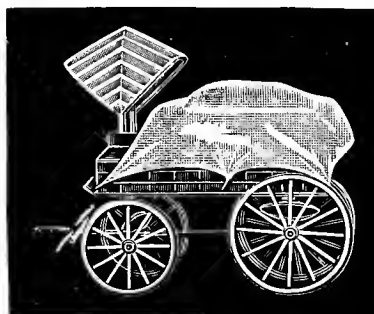
No. 7, for test tubes, per hundred	\$1 50
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TEST CHURN SUPPLIES

Cream Ledgers, 100 pages	each, \$1 25
" " 200 "	" 1 75
" " 300 "	" 2 50
Roe's Drivers' Cream Books, will keep 100 monthly accounts	per doz., 2 00
Checks, printed to order	per M., 3 00
Empire Cream Gauge	each, 3 00
Frink's Oil Test Chart	" 2 50
Ready Reckoner, for oil test (Curtis)	" 25
" " " " (A & B)	" 25
" " " " (Fargo)	" 50
" " " " (Kamp)	" 50
Shipping Tags, printed to order	per M., 1 90
" " " " "	per 500, 1 00

WAGON COVERS

WHITE CANVAS



These covers are made of the best quality of goods of grade listed, and the preparation used thereon is such as to render them perfectly waterproof. These covers are guaranteed not to stick together from heat.

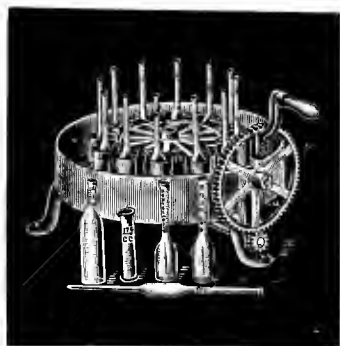
SIZES AND PRICES

SIZE.	8-oz. Duck Single Filling.	10-oz. Duck Single Filling.	12-oz. Duck Double Filling.	13-oz. Duck or No. 10.	15-oz. Duck or No. 8.	18-oz. Duck or No. 6.	20-oz. Duck or No. 4.
5½x 9.....				\$ 3 80	\$ 4 20	\$ 4 80	\$ 5 10
5½x12.....				5 05	5 60	6 30	6 95
7 x12.....				6 45	7 15	8 15	8 70
7 x15.....	\$ 2 90	\$ 3 65	\$ 5 60	8 05	8 95	10 15	10 85
10 x16.....	3 90	4 80	7 45	12 30	13 60	15 50	16 55
10 x17.....	4 15	5 10	7 90	13 05	14 45	16 45	17 60
10 x18.....	4 40	5 40	8 40	13 80	15 30	17 40	18 60
12 x14.....	4 25	5 25	8 10	12 90	14 30	19 25	17 35
12 x16.....	5 00	6 00	9 30	14 75	16 35	18 55	19 85
12 x18.....	5 50	6 75	10 45	16 55	18 35	20 90	22 80
12 x20.....	6 15	7 50	11 65	18 40	20 40	23 20	24 80
14 x16.....	6 50	7 95	11 20	17 20	19 05	21 65	23 15
14 x18.....	7 30	8 95	12 60	19 35	21 40	24 35	26 05
14 x20.....	8 15	9 95	14 00	21 50	23 80	27 10	28 95
14 x22.....	8 95	10 95	15 40	23 60	26 20	29 80	31 80
14 x24.....	9 75	11 95	16 80	25 75	28 55	32 50	34 75
16 x16.....	7 45	9 10	12 80	19 65	21 75	24 75	26 45
16 x18.....	8 35	10 25	14 40	22 10	24 50	27 85	29 75

No. 8, White Duck, sheds water, per square foot 5½c
 10 oz, " " for dust and rain, per square foot 4½c

BABCOCK MILK TESTERS

THE "ROE" STYLE HAND POWER



THE "ROE" MACHINE OPEN

The most durable, lightest running and satisfactory hand tester on the market. One trial will determine.

These machines are thoroughly well made. Have substantial cast-iron frames, swinging head and heavy gear. They are well known, and hundreds of them are in daily use. They have no superior for those whose business does not require a turbine machine.

SIZES AND PRICES

COMPLETE WITH GLASSWARE

4-bottle.....each,	\$ 8 00	12-bottle..each,	\$14 00
8 " " " " " "	10 00	24 " " " " " "	21 00

TRAVELING OUTFIT

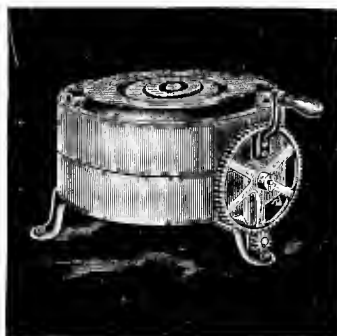
Bottle Outfit Complete with Case and Tray...\$5 50
Acid Box and Bottle.....each, 1 00

THE "IDEAL" HAND POWER

For Use in Small Dairies or on the Farm

We make this machine in two sizes, 2 and 4 bottles. They are very compact and simple, and if directions are followed we guarantee them to be accurate. They are designed especially for dairymen and farmers, but should be in the hands of every one who keeps a cow. Hotels and restaurants find them indispensable, while they are largely used in laboratories and by physicians in analytical work.

It is large enough to answer the purpose of an average size dairy, and cheap enough for



THE "ROE" MACHINE CLOSED

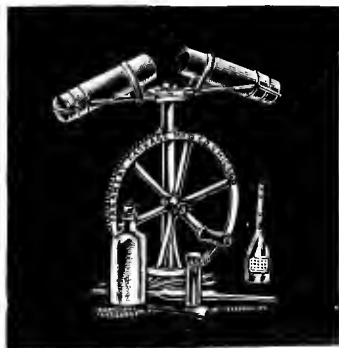
those who keep a single cow. *A milk tester at so low a price that it is within the reach of all. An absolute umpire as to the value of a cow for dairy purposes.*

Every dairyman should know what he is doing. Nothing is more conducive to success than knowledge and confidence.

With each machine is furnished necessary glassware and acid sufficient for a number of tests.

PRICES

2-bottle, complete.....each,	\$3 00
4 " " " " " " " " " " " "	4 00



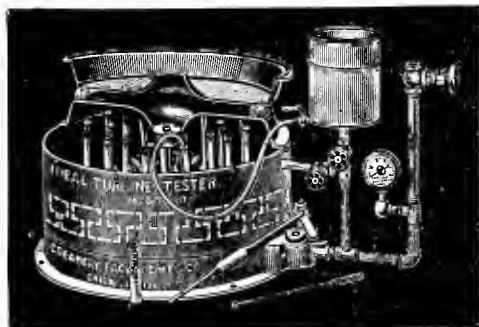
THE "IDEAL"

Delivered free to express companies. If to be shipped by freight add 15 cents for cartage.

THE IDEAL STEAM TURBINE BABCOCK TESTER.

IMPROVED IRON FRAME

The Most Convenient, Compact and Complete Tester Ever Offered.



The Ideal Steam Turbine Improved Iron Frame Babcock Tester.

In the new Ideal we have introduced a number of novel features in a Babcock Tester which will be appreciated by everyone. Briefly we may mention the special features of our new Tester as follows:

Light head,—Two bearings, Three-way steam inlet valve,—Steam brake,—Cast Iron frame and cover, with cover hinged,—Ball bearing,—Solid cast brass turbine,—Seamless brass pockets,—Separate compartment for turbine,—Independent steam inlet for heating testing chamber,—Head perfectly balanced,—Fitted with steam gauge,—Brass

syphon,—Water heating reservoir with bottle filling attachment, etc.

The Ideal Tester when first introduced, was far superior to other testers then upon the market. We believe that in the new improved Ideal we have again scored a distinct success in surpassing all Babcock testers now upon the market.

The Improved Ideal is made in two sizes only. **Cast frame**—The solid cast iron frame forms the ground work for a substantial machine that is practically indestructible. **Cover**—The cover hinges across the center, lying perfectly flat when opened, avoiding any possibility of its falling shut unexpectedly. **Pockets**—The pockets for holding test bottles are easily removed, but when attached are firmly locked in position, so that they cannot by any possibility fly off when in motion. The pockets are hinged, so that when at speed they take a perfectly horizontal position. This is important, as accurate reading cannot be made with bottles sloping in position, as the oil will stand higher on one side of glass than on the other. All running parts are of brass. **Uses Little Steam**—Owing to the lightness of the head and perfect control of steam inlet very little steam is required.

Three-Way Inlet Valve gives the operator perfect control of the Tester at all times. As soon as the test is finished, by throwing the valve the steam is admitted in the opposite direction, the steam itself acting as a brake and bringing the machine quickly to a stop. **Bearings**—The two bearings hold the machine perfectly true and prevent it from getting out of balance; also avoid loss of power from excessive vibration. The separate inlet, introducing steam into testing chamber, permits the holding of the test as long as desired before reading.

The hot water reservoir is an innovation that will be especially appreciated. The water in tank can be kept hot by jet of steam at the bottom. The operator, with hose pipe between thumb and finger, can fill bottles more accurately than with pipette. This attachment simplifies a very annoying part of milk testing. The hot water supply is always right at hand. It can be used without any delay.

Each machine is tested at high speed before leaving our shops. We guarantee each machine to be perfect and our glassware accurate.

SIZES AND PRICES

Complete with Steam Gauge, Speed Indicator and Glassware.

24-bottle.....	\$35 00
32-bottle.....	40 00

EXTRAS FOR BABCOCK TESTERS

"CREAMERY PACKAGE MFG. CO." STYLE

PARTS FOR "IDEAL" TURBINE TESTER

Name.	Price.	Name.	Price.
Body.....	\$.....	Lower Bronze Bushing.....	\$1 50
Flyer.....	4 00	Bottom Plug and Nut.....	.50
Diaphragm.....	2 00	Cups, each.....	40
Spindle and Point.....	2 00	No. 173. 40-Bottle Head, complete.....	6 50
Nozzle.....	1 75	" 176. 40 " " Ring.....	40
Cover.....	2 50	" 172. 32 " " complete.....	5 00
Steam Gauge.....	4 00	" 176. 82 " " Ring.....	40
Steam Gauge Syphon.....	.75	" 171. 24 " " complete.....	3 50
Speed Indicator.....	1 25	" 175. 24 " " Ring.....	.30
Steel Ball.....	.25	" 170. 20 " " complete.....	3 00
Upper Bronze Bushing.....	1 50	" 177. 20 " " Ring.....	.30

PARTS FOR IMPROVED IDEAL TURBINE TESTER

Flyer and Spindle.....each,	\$6 00	Steel Ball.....	each, \$0 25
3-Way Valve.....	" 6 00	Cups.....	" .50
Hinged one-half Cover.....	" 1 50	24-Bottle Head.....	" 3 50
Steam Gauge.....	" 4 00	32 " ".....	" 4 00
Steam Gauge Syphon.....	" .75	Hot Water Tank.....	" 1 00
Speed Indicator.....	" 1 25	Hose.....	" 20

PARTS FOR "ROE" PATTERN HAND TESTERS

No. 155. Body.....each, \$.....	No. 166. 8-Bottle Head.....each, \$1 25
" 165. Crank Wheel, complete....." 0 75	" 164. 12 " "....." 2 00
" 159. Crank, separate....." .25	Cover....." 1 00
" 158. Small Spur Gear....." .15	Cups....." 25
" " Small Bevel Gear....." .15	Drip Cock....." 40
" 168. Large Bevel Gear....." .25	Vertical Shaft....." 15
" 167. 4-Bottle Head....." .50	Horizontal Shaft....." 25

PARTS FOR "IDEAL" HAND TESTERS

No. 152. Standard.....each, \$1 25	No. A2. 2-Bottle Head, complete.....each, \$1 00
" 151. Crank Wheel....." .75	" A3. 4 " "....." 2 00
Tin Bottle Cups.....per pair, 75 cts	

"RUSSIAN" BABCOCK TESTERS**PRICES**

Complete with Glassware

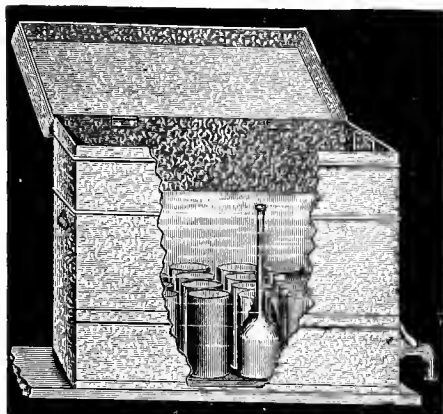
12-Bottle.....each,	\$50 00
24 ".....	" 75 00

EXTRAS

Spindles.....each, \$0 75	Bottle Cleaners.....each, \$ 0 10
Bushings....." 75	Steel Points....." .10
Screw and Nut....." 50	New Head....." 35 00
Bottles....." 20	New Frame....." 15 00
Tubes....." .25	Russian Pipette, 8, 8 CC....." 1 50
Skimmed Milk Tubes....." .25	Russian Acid Dipper....." .50
Cream Tubes....." .25	Pair of Tongs....." .15
Speed Indicators....." 10	Bottle Stand....." .50
Tube Cleaner.....each, 10 cts	

"BABCOCK" TEST SUPPLIES

THE "BABCOCK" TEST BOTTLE BATH



We represent herewith a test bottle bath which will be found very convenient and essential to those who wish to make perfect tests.

The amount of unseen fat that clings to glassware is generally insufficient to be noticed in the results obtained from testing whole milk, but it plays an important part in testing samples of separator skimmed milk.

It may be readily noticed by making a blank test with clean water in bottles which have been used for testing ordinary milk, and have been cleaned by simply draining the contents and rinsing once or twice in hot water.

At the conclusion of the test the operator will often find that a few drops of fat, sometimes enough to condemn the separator, will collect in the neck of the bottles, although the water tested has not been near a separator.

Boiling hot water will generally clean the grease from glassware for a time, but all test bottles should, in addition, be given an occasional bath in some alkali or other grease-dissolving solution.

After having rinsed the bottles thoroughly with hot water they should be placed in a hot solution kept in the tank where they can be left entirely covered with the liquid. The tank is provided with a small faucet at the bottom, thus allowing the liquid to be drawn off when test bottles are wanted. A tablespoonful or so of our "Ideal" Cleansing Powder to about two gallons of water will make a very satisfactory cleansing solution. The cleansing properties of this solution are increased by warming the liquid. The test bottles must be rinsed twice with hot water after they are taken from this bath.

PRICE

Galvanized iron, complete with removable racks, to hold 24 bottles.....	each,	\$3 50
" " " " " " " 40 "	"	4 50

COMBINED "BABCOCK" TEST WATER HEATER & BOTTLE FILLER

A combination that every one using a Babcock Tester needs.

It is composed of the following parts:

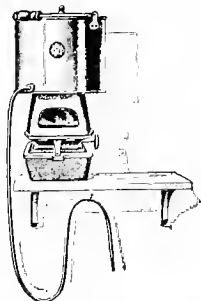
COVERED KETTLE—Retinned, extra heavy, fitted with nipple for hose, size 8x6½ in., capacity 4 quarts, each,	\$ 50
LAMP STOVE—Cast Iron Oil Tank, hinge top, nickel front, 1 burner, height 8½ inches, tank 3½x5½ in., complete, with wick.....	1 05
MOHR'S PINCHCOCK, nickel plated.....	25
PIPETTE TUBE, best glass with drawn point, length 2½ in. Price	10
PURE RUBBER HOSE, 3 ft. length by 3-16 inch diameter, per length	50

LAMP STOVE—Cast Iron Oil Tank, hinge top, nickel front, 1 burner, height 8½ inches, tank 3½ x 5½ in., complete, with wick.....each, 1 05

MOHR'S PINCHCOCK, nickel plated..... " 25

PIPETTE TUBE, best glass with drawn point, length 2½	
in. Price	each, 10

PURE RUBBER HOSE, 3 ft. length by 3-16 inch diameter,	
per length	50



PRICE OF COMPLETE OUTFIT

Including covered kettle, lamp stove, pinchcock, pipette tube and hose... . . . \$2 50

MILK TEST SUPPLIES

GLASSWARE



17 1/2 c. c. Pipette



Milk Bottle



Cream Bottle



Greiner's
Pipette



Acid
Measure



Dividers



Funnel



5-9 c. c.
Pipette

PRICES

Milk Bottles.....	each, \$0 ..	per dozen, \$....
Cream Bottles.....	" ..	" ..
Skimmed and Buttermilk Bottles.....	" ..	" ..
Milk Bottles for Beimling Tester.....	" ..	" ..
Our Test Bottles are all frosted on the breast of bottle so that they can be numbered with a lead pencil.		
Acid Measure.....	each, \$0 ..	per dozen, \$....
Funnels for Babcock Test Bottles.....	" ..	" ..
17 1/2 c. c. Pipette.....	" ..	" ..
15 c. c. Pipette for Beimling Test Bottles.....	" ..	" ..
5-9 c. c. Pipette.....	" ..	" ..
Greiner's Pipette.....	1 00	1/3 size...each, 1 00

GREINER PIPETTE EXTRAS

Rubber Bulb.....	each, \$0 20
Pipette Bulb.....	" 35
Large Glass Bulb.....	" 30
Rubber Connection.....	" 15

Our Glassware is all tested in our laboratory and we guarantee it correct

DIVIDERS

The reading of the test is facilitated very much by the use of the Dividers. It also eliminates the liability of error in reading the test.

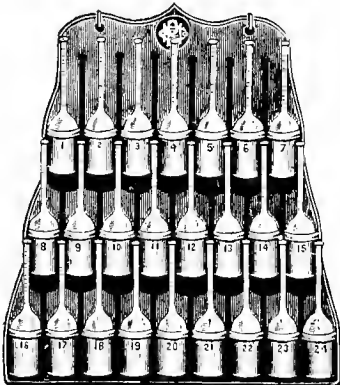
Price.....per pair, \$0 40

BABCOCK TEST BOTTLE RACK

This rack is made of tin and hangs flat against the wall, but the bottles stand upright and are easily filled. The racks are made in all sizes, to suit the number of patrons at any factory.

SIZES AND PRICES

24-Bottle Rack.....	each, \$1 50
26 " ..	" 1 75
42 " ..	" 2 00
54 " ..	" 2 25
61 " ..	" 2 50



For Prices not given see our Monthly Price Current

WAGNER'S "UP-TO-DATE" PIPETTE

TO USE WITH THE BABCOCK TEST

THE NEATEST AND MOST CONVENIENT PIPETTE
EVER PUT ON THE MARKET

DIRECTIONS

The mouth is applied to the slanting tube and milk drawn up until it is above the glass cock, then the cock is closed and the measured milk is put in the test bottle. Should there be an overflow same will be caught in the large glass overflow bulb or extension of slanting tube. This overflow bulb can be detached from the Pipette and emptied when desired.

Price, complete, - - - - each, \$1.25

EXTRA

Overflow Bulbs.....each, \$0.35

Pipettes....." .85

Rubber Stoppers....." .10



COMBINED ACID BOTTLE

Just the simplest thing imaginable, and it always works. Tip the bottle up until the pipette at the side is full up to the mark near the top, and when the bottle is returned to an upright position, the surplus flows back into the bottle again and the pipette is left full up to the mark, and contains exactly 17.5 c. c. The contents of the pipette may be then emptied by turning the cock at the bottom. This apparatus has the advantage of having no rubber connections and bulbs to wear out, and it is very simple and easy to work.

Price, each - - - - \$3.00



WAGNER'S DOUBLE BORE TEST BOTTLE

For accurately determining the percentage of fat
left in Skimmed or Buttermilk.

THIS TEST BOTTLE IS VERY SUBSTANTIALLY BUILT, IN FACT SUPERIOR
TO ANY TEST BOTTLE EVER PUT ON THE MARKET.

READS down to one *one-hundreth* of one per cent. fat.

ONE-TWENTIETH of one per cent. can be read as accurately and as easily as one *whole per cent.* in the ordinary Babcock bottle.

TESTS cannot be spoiled by overflowing with hot water.

USES but *one-half* as much acid as the ordinary skimmed milk bottle.

Invaluable to any owner or user of a Cream Separator, as it tells him just how to regulate the capacity of his machine so that the loss in the skimmed milk will be reduced to a minimum.

Price, - - - - each, \$0.75

" - - - - dozen, 9.00



MILK TEST SUPPLIES.

ACID.

To get a reliable test, it is absolutely essential that the acid be of the proper strength. We get the best article procurable, direct from the manufacturer, and test before sending out. We *guarantee* it to be of the proper strength.

PRICE

IN SINGLE GALLON LOTS

In jugs, per gallon..... Boxing
Jugs, extra

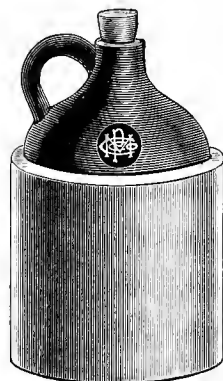
IN CARBOYS OF 10 TO 12 GALLONS

Per gallon Carboys. extra.....
Carboys returned will be credited at billing price, less freight and carting, providing they are complete.

COMPOUND FOR BEIMLING TEST

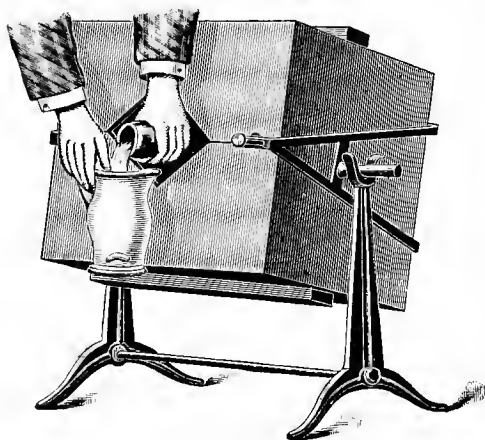
No. 1, per gallon No. 2, per gallon.....
Jugs and packages extra.

See monthly prices current for quotations.



ACID JUG

IMPROVED CARBOY TRUNNION



TRUNNION AND CARBOY

By the use of this trunnion a man alone can pour out any quantity with perfect ease and safety, without risk of injury to clothes or person; thus doing the work of two men in the old awkward way of tipping the carboy over on the ground floor, and in one-tenth of the time. There is no safer or better receptacle for keeping Acid, than a clean glass boxed carboy, when set up in the Improved Carboy Trunnion, as it sets in a position easily controlled by one finger, and any quantity can be drawn out easily by a child without possible accident.

PRICES

Set complete.....\$4 00
Improved pitcher for hand-
ling acids, 1-gal. size, each, 75

RUBBER CARBOY CAP

By the use of this Cap will be found the only convenient way to close up the mouth of a carboy tightly; and this is very essential where Acid is contained in them, as it loses much of its strength by absorption of moisture from the atmosphere when exposed to the air, and a tight-fitting cover for mouth of carboy prevents dirt or dust getting into the contents.

Price\$1 00



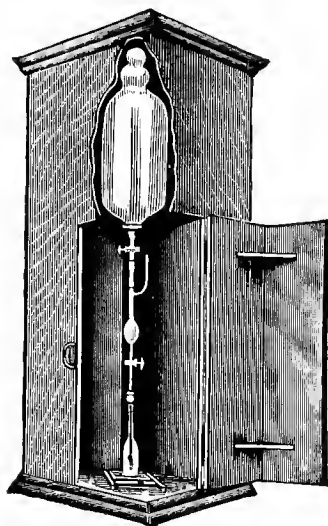
RUBBER CARBOY SPLASH PREVENTER

By putting this splash preventer over the mouth of a carboy, liquid contents flow out in a steady stream, without gulping or splashing out, as is usual in pouring directly from mouth of carboy.

Price.....\$1 50



MILK TEST SUPPLIES.



IDEAL AUTOMATIC

Acid Measure and Cabinet.

This acid measure is very simple and by its use bottles can be filled in one-quarter of the time that is required by the old way. Being encased in a cabinet, the glass parts are protected and breakage is unnecessary. The cabinet is elegantly made and finished and the glass parts heavy. It is easily moved and withal is a necessity in every well-regulated creamery. The glass flask shown in cut holds $1\frac{1}{4}$ gallons of acid. ANYONE CAN USE IT.

PRICE.

Complete, with bottle rack, test bottle and filling funnels.....\$12 00

SCOVILLE MILK SAMPLER.



It takes the sample from the top to the bottom of the milk in the weigh can, thus giving a fair sample of the whole body of milk. When it reaches the bottom the movable cap closes, retaining the sample, which can then be discharged into the sample receptacle.

Price\$2 00

MILK THIEVES.



This is a very convenient sampler and gives excellent satisfaction.

Price.....\$0 60

TEST BOTTLE BRUSH.



Made especially for cleaning necks of Babcock test bottles.

Price, each.....\$0 10 Per dozen.....\$0 50

HYDROMETER.

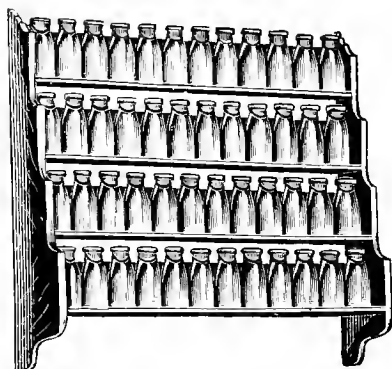
Price, each, \$0 75



For testing strength of acid.

Swedish Acid Tester.....each, 35 cents.

MILK TEST SUPPLIES.



Composite Test Sample Rack.

This rack is very convenient for holding the lightning cover sample jars. The rack can be moved from weigh room to testing room without removing jars.

PRICE.

For 24 $\frac{1}{2}$ -pint jars	each,	\$1 50
" 24 1-pint "	 "	1 75
" 24 1-quart "	 "	2 00
" 48 $\frac{1}{2}$ -pint "	 "	2 00
" 48 1-pint "	 "	2 25
" 48 1-quart "	 "	2 50

Sample Bottles for Composite Test.

CHEAPEST AND BEST SAMPLE JAR IN USE.

It is easily and quickly opened and being made very heavy from the best flint glass, and will stand much hard usage.

PRICE.

$\frac{1}{2}$ -pint.....per doz.,	\$0 95	$\frac{1}{2}$ -pint.....per gross,	\$8 25
1-pint..... "	1 00	1-pint..... "	9 25
1-quart..... "	1 10	1-quart..... "	10 25

Sample Bottle Brush.

FOR CLEANING COMPOSITE TEST JARS.



Each.....\$0 25

Per doz.....\$2 50



Brass Tags.

FOR NUMBERING COMPOSITE TEST JARS.

They are fastened about the neck of the bottle with annealed wire in such a way that they lay flat against the jar. Price.....each, \$0 02

TAGS FOR BABCOCK BOTTLES.

These are made from brass to bend around neck of bottle and numbered as desired.

Price.....per doz., \$0 12



NEW "IDEAL" TEST MEASURE.

FOR TAKING SAMPLES OF MILK
FOR COMPOSITE TEST

Price,.....each, \$0 25



PRESERVATIVES FOR MILK SAMPLES

IDEAL

CORROSIVE

SUBLIMATE

TABLETS

The only perfect Composite Test Preservative on the market. Being made up in tablet form, they are very handy to use. They are guaranteed to properly preserve the samples for the time stated. All things considered, the "Ideal" Corrosive Sublimate Tablets are the most satisfactory Composite Test Preservative on the market. "Once used always used."

SIZES AND PRICES

	1 M lots, per M	3 M lots, per M	5 M lots, per M
Small size,—to preserve ½ pint samples 4 weeks or 1 pint samples 2 weeks			
Large size,—to preserve 1 pint samples 4 weeks or 1 quart samples 2 weeks			

Send for free samples. We recommend the large size for general use.

Composite Test Preservative, liquid.....per pkg., ...

Bichromate of Potash, powdered.....per lb., ...

“ “ “ in 10 lbs. boxes..... “

Farrington's Potassium Bichromate tablets.....per M

LEWIS LYE

Used to cut soured samples of milk and make it fit for testing. Some use it entirely instead of any kind of a preservative.

Price, per single pkg.,.....per case of 4 doz. pkgs.....

For Prices on Preservative see our Monthly Price Current

CREAMERY AND CHEESE FACTORY STATIONERY

DAIRY AUTHORITIES

Harris, B. & C., Hand Book	cloth,	\$1.25
Gurler's, "American Dairying"	“	1.00
Decker's "Cheddar Cheese Making"	“	1.00
Poultry Book	paper,	.50
Willard's Practical Butter Book	cloth,	1.00
"A B C in Cheese Making" (Cheddar and Gouda)	paper,	.50
Curtis' "Hints to Dairymen"	cloth,	.50
Shoenman's "Milk Testing"	“	.75
Shoenman's "Butter Fat and Dividend Calculator"	“	2.00
Milk Testing and its Products, (Farrington & Woll)	“	1.00
Willard's Dairy Husbandry	“	3.00
Dairying for Profit	paper,	.25
Dairy Calendar	cloth,	1.00
The Bidwell System of Dairying	paper,	.50
Monrad's Pasteurization and Milk Preservation	“	.50
Cheese Making in Switzerland (Swiss, Brick and Limberger)	each,	.50
Principles of Pasteurization	“	.50
Feeds and Feeding	“	2.00
Dairy Bacteriology	“	1.00
Creamery Accounting	“	1.00

CREAMERY AND CHEESE FACTORY STATIONERY

THE CREAMERY COMPUTATOR.

Something entirely new. Best computer ever offered. No calculations necessary. Shows at a glance value of milk at given test when butter sells at from 10 to 30 cents per pound.

Price\$2.50

NEWTON COMPUTATOR.

This book contains tables for the determination of the price of milk on the relative value plan and the computation of the value of any amount of milk, from 10 cents to \$1.60 per 100. It also contains full and explicit instructions for operating the composited test.

A LABOR SAVER.

Price\$4.50

NOTE—We will send either one of these computers to responsible parties for inspection, to be returned if not satisfactory, with the understanding that you pay postage both ways in case the book is returned to us. That's a fair proposition; why not accept it?

AMERICAN SHIPPING BOOK.

A Shipping Book and Ready Record of current transactions for the use of creamery men and shippers of butter, eggs, cheese and dressed poultry.

Price.....each, \$1.25

IDEAL DOUBLE MILK SLATES.

A great many creamery and especially cheese factory men prefer using a double slate instead of the milk receiving sheets.

Sizes and Prices:

11x7 in..each, \$0.25

12x8 in..each, \$0.50

13x9 in..each, \$0.75

1. FIVE (5) copies of the
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New style, each, 75c; per doz.... \$8 00 Old style, each, 75c; per doz.....\$8 00

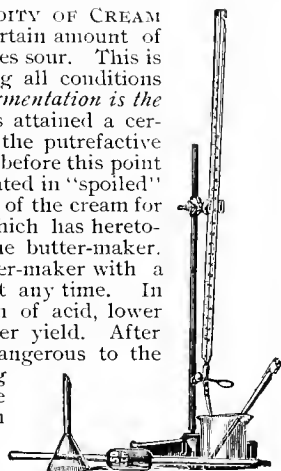
MANNS' ACID TEST

PROF. MANNS' ACID TEST, FOR TESTING THE ACIDITY OF CREAM AND MILK.—During the process of ripening cream a certain amount of acid is developed, or, in other words, the cream becomes sour. This is due to the presence of the lactic ferment, which, finding all conditions favorable to its growth, develops rapidly. *The lactic fermentation is the one desired in the ripening process.* After the cream has attained a certain degree of acidity the lactic fermentation ceases and the putrefactive fermentation begins. If the cream should not be churned before this point is reached, the effects of the second fermentation is illustrated in "spoiled" cream. To decide, therefore, upon the proper condition of the cream for churning is a very important and very delicate point, which has heretofore been left to the senses of taste, smell and sight of the butter-maker. The object of introducing this test is to furnish the butter-maker with a means of determining the *exact* acidity of his cream at any time. In churning cream that has not attained its proper strength of acid, lower the temperature, thus saving a serious loss in the butter yield. After cream has attained an acidity indicated by 42 c. c. it is dangerous to the flavor of the product to allow the cream to stand long before churning. In cheese-making the process can be successfully used to ascertain when milk is ripe enough to add rennet.

Price complete.....\$5 00

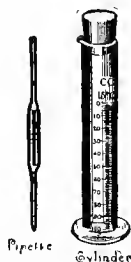
EXTRAS

Burette, with pinch cock, each....	\$2 00	50 c. c. pipette, each.....	\$ 50
" stand, each.....	1 00	Beaker glass, ".....	20
" clamp ".....	50	Stirring rod, ".....	10
Neutralizer, per gal.....	1 00	Funnel, ".....	20
Indicator, 2 oz. bottle, by mail.....			40



FARRINGTON'S ALKALINE TABLETS

For Testing the Acidity of Milk or Cream



Apparatus for determining the exact acidity of milk and cream, used especially in cream ripening.

These tablets have been used successfully in the daily work of many men who handle milk and cream. They have proved to be a means by which the dairy-man is constantly learning more about his business. He is therefore more prosperous, as they aid him to get top instead of fair or medium prices for his goods.

As a simple and practical guide for showing the exact sweetness or sourness of milk or cream, they have demonstrated that an acidity tester is as valuable as any other tester for the butter-maker, cheese-maker, milk-dealer and dairy-man.

THE USES OF THE TABLETS

Among the many uses of the tablets are the following:

1. **Selecting sweet milk** for the creamery, cheese factory, milk pasteurizer or milk dealer.
2. **Testing the acidity of cream** for churning at home or at the factory.
3. **Tracing the rate of ripening** of cream, to show what treatment it is necessary to give the cream in order to get the proper acid condition for churning AT THE PROPER TIME.
4. **To show whether it is safe** to mix two lots of cream.
5. **To test the acidity of whey.**

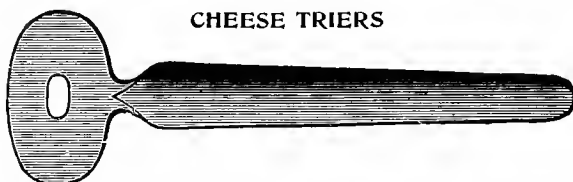
PRICES

Small outfit complete, with 100 tablets, 20 c. c. vials and 17.6 c. c. pipette.....	\$ 85
Large outfit complete, with 1,000 tablets, 100 c. c. cylinder and 17.6 c. c. pipette..	2 75
100 tablets.....	\$ 50
1,000 ".....	2 00
20 c. c. vial, each.....	10
100 c. c. cylinder, each.....	95
17.6 c. c. pipette, each.....	25c.

TRIERS

BUTTER AND CHEESE

CHEESE TRIERS



Solid cast steel, 6 x $\frac{3}{8}$ inch, flat handle.....	each, \$0 50
5 x $\frac{3}{4}$ inch, extra finished silver steel.....	“ 95
6 x $\frac{3}{4}$ “ “ “ “ “	“ 1 00
“T” handle, “ “ “ “	“ 2 00
Same, with leather case.....	“ 2 50
Extra, if nickel-plated.....	“ 15

BUTTER TRIERS



No. 1. 18-inch, forged steel.....	each, \$1 75
No. 1. 21 “ “ “ “	“ 2 00
Extra, if nickel-plated.....	“ 35



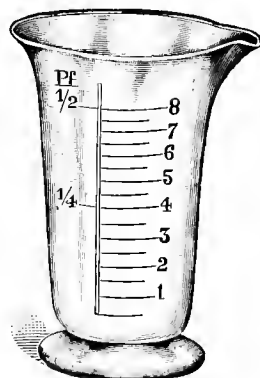
No. 2. 18-inch, polished steel, nickeled	each, \$1 00
No. 2. 21 “ “ “ “	“ 1 25
No. 2. 24 “ “ “ “	“ 1 60

GRADUATES

Our Graduates are tested and are thoroughly accurate.

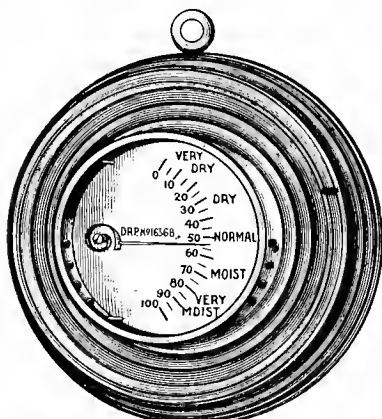
PRICE

1 dr.....	each, \$0 20
2 oz.....	“ 25
4 oz.....	“ 30
8 oz.....	“ 45
12 oz.....	“ 60
16 oz.....	“ 75



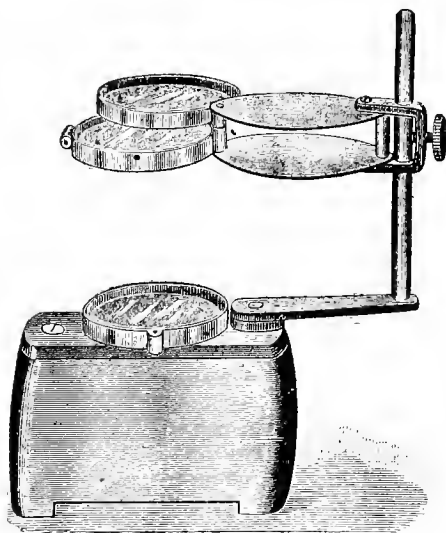
THE HYGROMETER.

For Cheese Curing Rooms and Cold Storage Houses.



The importance of maintaining a proper degree of humidity of the atmosphere of cheese curing rooms and cold storage houses is beginning to be well understood by all intelligent cheese makers. A proper and even temperature should be held as near as possible and THE ATMOSPHERE SHOULD CONTAIN A PROPER AMOUNT OF MOISTURE. These being the essential points, we wish to call attention to the application of an instrument called the Hygrometer, which can be used in connection with any good thermometer to assist in effecting the desired result. The Hygrometer hung in a curing room will indicate the moisture in the air; if it stands at 50° and a thermometer beside it shows 72°, then the air is in proper condition for curing full milk cheese. For skims a lower temperature and a greater degree of moisture. Adapt the application of the instrument to meet circumstances, and when necessary, sprinkle floors, ventilate or by other means increase or diminish moisture. As a rule the air of curing rooms is too dry, cheese shrink too much in weight and crack; the use of this simple instrument will prevent this and save loss. The cured condition of cheese will also be greatly improved. In COLD STORAGE Rooms it is very desirable to know the degree of moisture. For this purpose the Hygrometer will be found invaluable.

Price of Hygrometer, polished wood frame, about 5½ inches in diameter.....\$2 50
Sent by mail on receipt of \$2.75.



SPENCE'S MILK-SCOPE.

A New, Quick Test for Tainted Milk at Any Temperature.

This instrument was invented by W. G. Spence, expert of the N. Y. State Dairy Commission, and has been successfully used by him during the past year. Anyone can use it.

Each patron's milk may be examined in a few seconds, while being delivered. If taint is discovered, the cheese maker knows how the milk should be handled, and the patron is directed to investigate the cause of it.

This is the only instrument in existence for detecting taint in milk at ordinary temperature as delivered at the factory.

Price complete, with directions for using.....\$4 50

(PATENT PENDING.)

GLASSWARE

LACTOMETERS COMMON



Our common lactometers are imported and are guaranteed to be correct.
Try them.

Each.....\$0 60

QUEVENNE'S

Lactometer and Thermometer combined



An accurately graduated instrument, which gives the specific gravity and
temperature of milk at the same time.

Price.....\$2 00

DIRECTIONS FOR USING QUEVENNE'S LACTOMETER

Always remember that the specific gravity of water is 1,000.

Upon the yellow-shaded paper, you will note that specific gravity of pure milk ranges from 1,033 to 1,039 as shown by the brackets.

If there is water added the amount will be shown by the brackets to represent either 1-10, 2-10, 3-10, 4-10 or 5-10 water added to the pure milk.

In testing skimmed milk you must remember that specific gravity is between 1,036 and 1,033, and in the same way as mentioned regarding pure milk, if water is added the bracket will show 1-10, 2-10, 3-10, 4-10 or 5-10 water added to the skimmed milk.

Always remember that the thermometer of the Lactometer should register 60 degrees before testing the milk; otherwise the test will be imperfect

TEST TUBES

LIGHT 3-4x6



Per dozen.....\$0 25 Per 100.....\$2 50

HEAVY 1x5

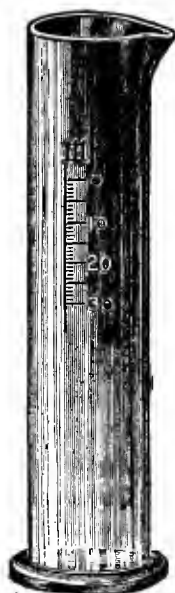


Plain, per dozen.....\$0 50 Plain, per 100.....\$4 00
Graduated, per dozen.....3 00

Glassware by mail is at purchaser's risk

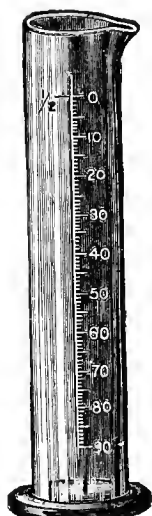
TESTING INSTRUMENTS.

Consisting of two 2 x 12 jars, one 1½ x 10 jar, and lactometer.



Test Jar.
Grad. 0-30.
2 x 12.

Each... ..\$0 50



Test Jar.
Grad. 0-100.
1½ x 10

Each\$0 50



Lactometer.

Each.....\$0 50



Test Jar.
Grad. 0-30.
2 x 12.

Each.....\$0 50

The samples of milk to be tested by the lactometer must be brought to the exact temperature at which the lactometer is graduated, as any variation will cause a difference in their specific gravity. The lactometers which are graduated for milk at 60 Fahrenheit are the most convenient for general use. Whenever milk shows by the lactometer a less specific gravity than pure milk, one of two things may be inferred:

First—That the suspected milk contains a great amount of cream. This can be easily determined by comparing it with an equal quantity of pure milk, both being set in two equal cream gauges a sufficient time for the cream to rise. It will then be seen at once if the suspected milk contains more cream than the average pure milk.

Second—If it should be found to contain less fat, the inference will be that the milk has been watered. To ascertain how much water has been added, take a sample of milk known to be pure and composed of mixture obtained from several cows, and put it in a per cent jar, filling the jar up to the gauge mark 0 or zero; then fill another per cent jar to the same point with suspected milk, and the small jar to the same point with water. Place all three jars side by side, so that they will be of the same temperature and subjected to the same atmospheric influences, until the cream has time to rise. Note the percentage of cream on each sample of milk before removing or disturbing it. After removing the cream from both samples of milk, insert the lactometer in the suspected milk and note the point to which it sinks; then place the lactometer in the pure milk and pour in water from the small jar until the lactometer sinks to the same point at which it stood in the suspected milk. One-half the number of degrees of water thus taken from the small jar, as shown by the graduations on it, will indicate the per cent of water that has been added to the suspected milk.

In all tests of milk, care should be taken to render them reliable, especially when affecting the reputation of the party supplying it.

Price, complete.....\$2 00

THERMOMETERS, ETC.

COMMON FLOATING

8-inch.....	each, \$	25
8 ".....	per doz.,	1 75
8 " by mail.....	each	30

NICKEL-PLATED FLANGE

8-inch.....	each, \$	25
8 ".....	per doz.,	1 75
8 " by mail.....	each,	30
10 ".....	"	30
10 ".....	per doz.,	2 00
10 " by mail.....	each,	40
8 " "Ideal" Oxidized.....	"	50

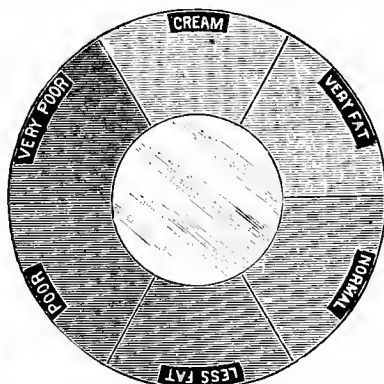
"PIOSCOPE" OR HEEREN'S TESTER



Floating.



Flange.



Each.....\$0 75

THE "LITTLE DETECTIVE"

No more watered milk. The simplest and most reliable instrument yet invented for detecting watered milk.

It will show in less than two minutes whether or not water has been added to pure milk.

Sent to any address, postpaid, on receipt of \$1 00

NEW FLOATING THERMOMETER



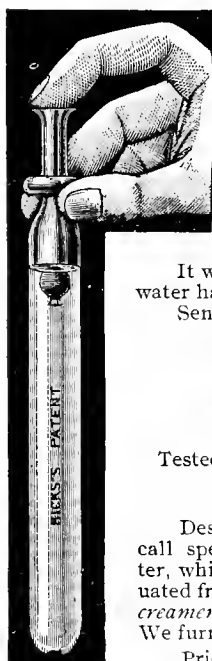
Tested and guaranteed correct; each, 50c.; per doz., \$5 50

TEST THERMOMETER

Designed for Testing Small Thermometers. We wish to call special attention to a new 12-inch floating thermometer, which we are having made specially for us. It is graduated from 32 to 212 Fahr., and is absolutely correct. *Every creamery and cheese factory should be provided with one.* We furnish them in one size only. *Thoroughly tested.*

Price, with case.....\$1 50

Above goods, if sent by mail, at purchaser's risk.

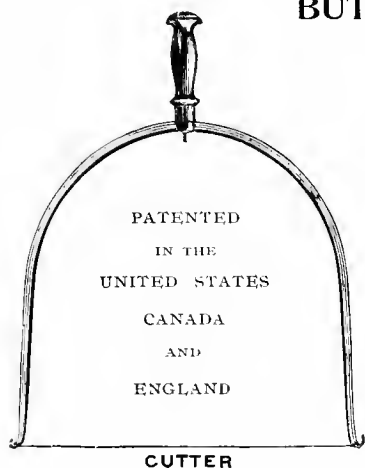


Little Detective



Test Thermometer

THE "BOSTON" COLD STORAGE BUTTER AND CHEESE CUTTER



This cutter is used and highly recommended by a great many butter dealers and grocery men. The bow is made of the *best spring steel, tinned or nickeled, with piano wire cutters, maple or rosewood handles*, and will last for years.

A new and valuable implement for wiring Butter and Cheese.

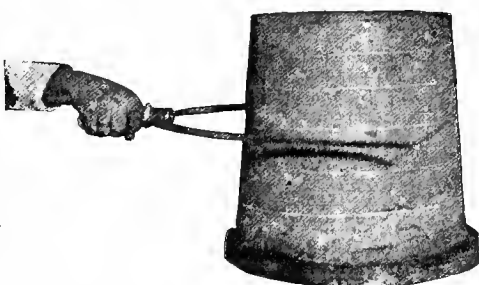
Does its work perfectly.

Does not break off small pieces.

The only perfect tool for wiring Butter ever offered to the trade.

Why dig Butter out of a tub when you can cut it up into shapely bricks of the size wanted?

It saves time, patience and butter, and you can serve your customers much more satisfactorily.



WIRING BUTTER

SPECIFICATIONS AND PRICES SMALL SIZE

Bow, 12 in. high; wire, 11 ½ in. long.
For cutting any size small cheese and small packages of butter.

Complete, with Tinned Bow, maple handle and 1 dozen extra wires.....each, \$1 25

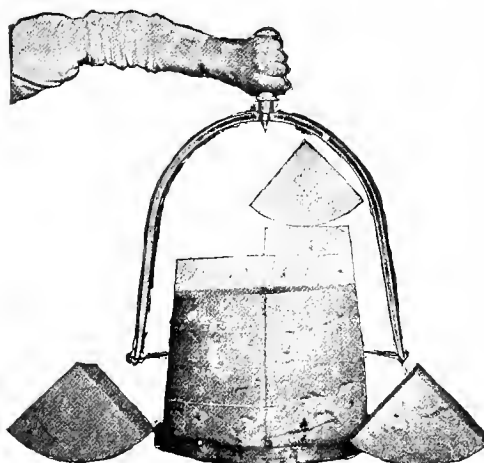
Complete, with Nickeled Bow, rosewood handle, and 1 doz. extra wires.....each, 2 00

LARGE SIZE

Bow, 16 in. high; wire, 18 in. long.
For cutting large cheese and large packages of butter, both in tubs and barrels.

Complete, with Tinned Bow, maple handle and 1 dozen extra wires.....each, \$1 50

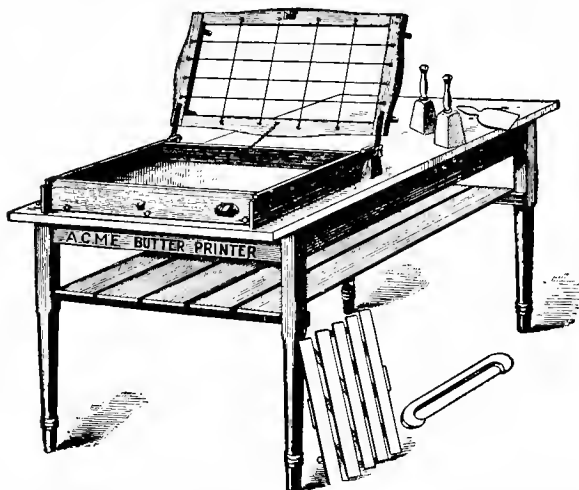
Complete, with Nickeled Bow, rosewood handle, and 1 doz. extra wires.....each, 2 50



CUTTING OUT BUTTER

"ACME" BUTTER PRINTER

A Printer that Prints each Brick Square and True



This cut represents an entirely new and very complete machine for making Butter Prints, which is much superior in its workings to anything before offered both in completeness and rapidity of work. It is provided with a convenient table, with shelf underneath for holding tools, is easily adjusted and handled. It is made for two-pound, one-pound and half-pound prints as desired; will put out 25 pounds of half-pound or one-pound prints, or 30 pounds of two-pound prints, according to construction, at one operation of the machine, which requires but a very few minutes, and a great feature of its work is a result never approached by any other machine ever invented for this purpose. It does not shrink the butter any more than the process of packing in tubs.

It is one the most rapid and perfect Butter Printers ever placed on the market.

It is one of the few Butter Printers ever offered that will print so large a quantity at one impression.

It is one of the few Butter Printers ever invented that will leave the prints on a tray so that they can be conveniently removed to the cooler before wrapping, when necessary, using the tray as a carrier.

The tray as seen in the cut leaning against the table leg, is an adjustable rack which by a slight movement can be so opened as to separate the prints, thus preventing the danger of mussing them in handling. Four of these trays go with every machine. By the side of this tray, on the floor in the cut, is seen the trimmer with which the top of the mass of butter is leveled after being packed in the box ready for cutting into prints. One of these trimmers goes with each machine. On the table back of the print box and cutter can be seen the two packers and ladle which go with every machine sold. Directions for operating accompany each printer.

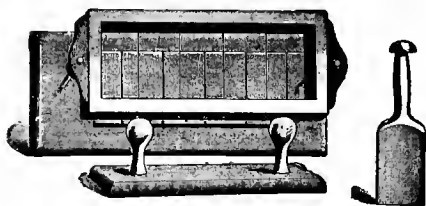
SIZES AND PRICES OF BUTTER PRINTER

No. 1 Printer, for 15 Two-pound Bricks $6\frac{3}{4} \times 3 \times 3$ inches, at one impression . . .	\$35 00
No. 2 Printer, for 25 One-pound Bricks $2\frac{1}{2} \times 2\frac{1}{2} \times 4\frac{5}{8}$ inches, at one impression . .	35 00
No. 3 Printer, for 50 Half-pound Bricks $2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{1}{8}$ inches, at one impression . .	38 00
No. 4 Printer, for 50 Half-pound Bricks $1\frac{3}{4} \times 1\frac{3}{4} \times 3\frac{1}{2}$ inches, at one impression . .	38 00
No. 5 Printer, for 16 One-pound Bricks $2\frac{1}{2} \times 2\frac{1}{2} \times 4\frac{5}{8}$ inches, at one impression . .	30 00
No. 6 Printer, for 9 One-pound Bricks $2\frac{1}{2} \times 2\frac{1}{2} \times 4\frac{5}{8}$ inches, at one impression . .	28 00

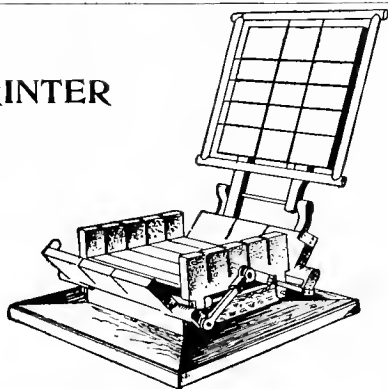
Other sizes made to order when desired.

Extra Butter Trays, 50 cents each. Extra Butter Packers, 35 cents each. Extra Butter Ladles, 25 cents each. Extra Butter Trimmers, 25 cents each. Plain Followers and Frames go with each machine. Carved Following Boards furnished when ordered, at reasonable cost.

THE AMERICAN BUTTER PRINTER



DAIRY AMERICAN



FACTORY AMERICAN.

This is a new Printer, very unique in design. It is easy to manipulate. Prints rapidly and leaves the butter in good shape, either to wrap or put in cooling room.

This machine is just what the name implies, a printing and weighing machine, making each print of accurate weight and of a perfectly true and uniform style.

Each machine is supplied with four following boards or trays which are used in removing the butter from the machine, and, if desired, butter can be left on these and placed on the refrigerator to thoroughly harden before being wrapped for shipment.

PRINT BOARDS

We are prepared to make carved print boards to go with the American Printer, of either names, initials or monograms, for which we make a nominal charge. The new feature in this respect is that the letters are raised on the wood instead of being cut into the wood, and thus pressing the letters into the butter instead of raising on same. Anyone accustomed to print butter will at once see the advantage of this, as the design will not become obliterated in packing and shipment.

Each machine, before being sent out, is tested and adjusted in every particular, so that customers ordering them need have no fear whatever of their not working properly.

SIZES AND PRICES

5 lb. Dairy Size, American Printer.....	\$ 5 00
8 lb. Dairy Size, American Printer.....	7 00
Size of prints, $2\frac{1}{2} \times 2\frac{1}{4} \times 4\frac{5}{8}$.	
10 $\frac{1}{2}$ -lb. Dairy Size, American Printer	6 00
16 $\frac{1}{2}$ -lb. Dairy Size, American Printer	9 00
Size of prints, $2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{5}{16}$.	
5 2-lb. Dairy American Printer.....	7 00
8 2-lb. Dairy American Printer.....	9 00
Special sizes made to order.	
10-lb. American Printer, creamery size.....	20 00
15-lb. " " " "	25 00
20-lb. " " " "	27 50
25-lb. " " " "	30 00
Size of print, $2\frac{1}{2} \times 2\frac{1}{2} \times 4\frac{5}{8}$.	
20 $\frac{1}{2}$ -lb. American Printer, creamery size	25 00
30 $\frac{1}{2}$ -lb. " " " "	27 00
40 $\frac{1}{2}$ -lb. " " " "	30 00
50 $\frac{1}{2}$ -lb. " " " "	32 50
Size of print, $2\frac{1}{2} \times 2\frac{1}{2} \times 2\frac{5}{16}$.	
25-lb. American Printer, special size	30 00
Size of print, $2\frac{3}{8} \times 3\frac{1}{4} \times 3\frac{3}{4}$.	
50 $\frac{1}{2}$ -lb. American Printer, special size.....	32 50
Size of print, $2\frac{3}{8} \times 1\frac{5}{8} \times 3\frac{3}{4}$.	
15 2-lb. American Printer, special size.....	32 50
Size of print, $6 \times 3\frac{3}{8} \times 3$.	

Each Factory Printer sent complete with four Trays, one Butter Packer,

one Butter Ladle and one Trimmer.

Extra Trays, each \$0 50

Extra Cutting Wires, each..... 02

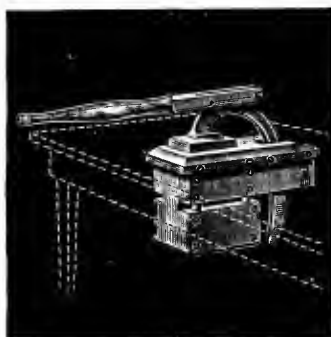
Large and Substantial Printing

Tables, each..... \$2 50

BUTTER PRINTERS

"IDEAL LEVER"

THE
ONLY
SUCCESSFUL
PRINTER



FOR
COLD
STORAGE
BUTTER

Above we illustrate one of our newest printers. It is adjustable, so that it will print either pounds or half pounds. It is self-gauging, making the prints neat and also uniform in weight.

This printer is intended for use in creameries, but more especially for printing storage or tub butter. It is very rapid and does excellent work.

To Operate, you press the box full of butter, which is level with the top of the table, working it in solid, using the lever; you then stroke it off level with a paddle, then raise the lever and throw it all the way back, which raises the butter out of the box nicely printed.

There are screws in the bottom of the print block, and also in the bottom of the follower, for adjusting the weight of the butter, which it does more exactly than if weighed. Prints are the same size as those of the I X L Printer.

SIZES AND PRICES

1 lb. or ½ lb. printer.....	\$10 00	2 lb. printer.	\$13 00
1 lb. or ½ lb. printer, complete		2 lb. printer, complete with table	18 00
with table.....	15 00	10 lb. " " " "	25 00

EXTRAS

Handle.....	\$0 75	Initial Blocks.....	\$1 00
Plunger blocks.....	10	½ lb. plates for blocks.....	20
Plunger Arm.....	1 00	1 lb. " " " "	25
Sheaf Blocks.....			1 00

NESBITT'S PATENT SELF-WEIGHING

PRICE LIST

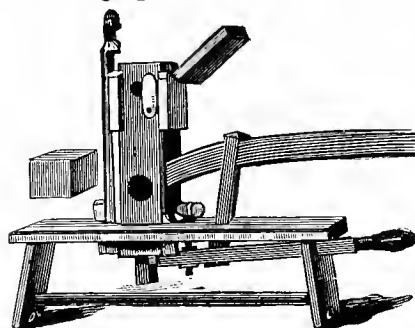
½ lb. press.....	\$4 00	1 lb. press, with self-gauger and	
With self-gauger, and without table	5 00	table.....	\$15 00
1 lb. press.....	4 50	1 lb. and ½ lb., with table and	
With self-gauger, and without table	5 50	gauger.....	16 00

On special orders we can furnish machines to print 3 lb. or four ½ lb. bricks. Above prices include plain (uncarved) stamp block.

Same size prints as I. X. L.

EXTRAS

Plunger with Block.....	\$0 35
Wood Spring.....	15
Wood Fork.....	20
Wood Hand Lever.....	30
Block.....	15
Gauge Screws, net.....	15



Without Table.

Jockey Printer, 1 lb. size, each, \$5.00

BUTTER PRINTERS.

I. X. L. SELF-GAUGING.

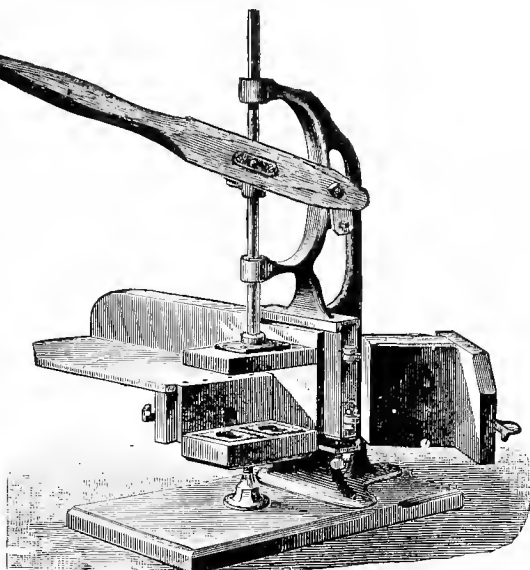
SIZES AND PRICES.

With one box and print
(either 1lb or $\frac{1}{2}$ lb) ...\$10 00
With both 1lb and $\frac{1}{2}$ lb
boxes and prints 13 50
With both 1lb and 2lb
boxes and prints..... 15 00
For 2lb printer..... 11 00

\$1.00 extra for initials or
monogram.

Regular size of $\frac{1}{2}$ lb printer—
3 $\frac{3}{8}$ in. long by 2 $\frac{1}{4}$ in. wide.
Regular size of 1lb printer—
4 $\frac{3}{4}$ in. long by 2 $\frac{1}{2}$ in. wide.
Regular size of 2lb printer—
6 in. long by 3 $\frac{1}{4}$ in. wide.

Special sizes made to order.



PRINTER EXTRAS, I. X. L.

Rods.....	\$0 75	Set M. & F. Hinges.....	\$0 50
Frames.....	3 50	" (2) Thumb Screws.....	05
Spur Piece.....	25	1 lb. Hopper.....	2 50
Set Screw.....	05	2 lb. ".....	3 00
Handle, (wood only).....	40	Catch.....	05
" complete.....	75	Stem.....	20
Plunger with plate, $\frac{1}{2}$ lb.....	20	Base Board.....	25
" " " 1 ".....	25	Lever Hinge complete.....	75
" " " 2 ".....	35	Wrench.....	20
Latch.....	10	$\frac{1}{2}$ lb. Attachment.....	3 50
Sheaf Block.....	1 00	1 lb. ".....	4 00
Initial ".....	1 00	2 lb. ".....	4 50

LAFAYETTE.

Handle.....	\$0 75	Sheaf Blocks.....	\$1 00
Plunger Blocks.....	10	Initial Blocks.....	1 00
Plunger Arm.....	1 00		

Prices for Carving Printer Blocks

A single initial twice.....	with border.....	\$ 80
A wheat sheaf twice.....	" ".....	1 25
A clover, maple or other leaf twice.....	" ".....	1 10
Acorn and leaves twice.....	" ".....	1 25
Two initials twice.....	" ".....	1 00
A tulip, daisy or other small flower twice.....	" ".....	1 25
Three initials twice.....	" ".....	1 25
Rose bud and leaves twice.....	" ".....	1 25
A full blown rose twice.....	" ".....	1 50
A cow once, or cow's head twice.....	" ".....	2 00
Monograms twice, from.....	" ".....	\$1 50 to 2 00

Name of person or farm, 5 to 10 letters, 15 cents per letter; over 10 letters, 13 cents per letter, including border.

These prices are for the designs cut into the blocks so as to be raised on the butter. *If the letters are raised on the block the carving will cost from one-third to one-half more.*

BUTTER PRINTERS

THE "EUREKA"

No. 1.

This improved Butter Mould and stamp is self-weighing or gauging. The same stamp can be adjusted to print pounds or half-pounds. The adjustment is regulated by a collar that moves up and down on the upright standard and is kept in place by a set-screw. The slide is readily moved in and out by a simple motion of the middle finger.

The process of printing is very rapid. With little practice a person can easily mould from ten to fifteen prints per minute.

Gives accurate weights when rightly adjusted. Prints pounds $4\frac{5}{8} \times 2\frac{1}{2} \times 2\frac{3}{4}$ inches; also half-pounds $4\frac{5}{8} \times 2\frac{1}{2} \times 1\frac{3}{16}$ inches.

It is made of close-grained hard wood with gun metal, nickel-plated top and trimming.

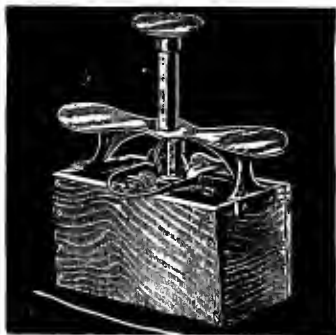


PRICE

With plain (uncarved) print block (to print pounds or half-pounds).....\$4 50

EXTRAS

Frame.....	\$2 25
Post.....	60
Cap.....	40
Clamp.....	30
Clamp Screw.....	05
Slide.....	20
Slide Screw.....	05



No. 2.

This Butter Mould is essentially like the Eureka No. 1 in its workings and construction, except that there is no metal band around the top. The same printer will print pounds or half-pounds of the same sizes as the No. 1, and is made also in two-pound size, twice as wide as the one-pound.

PRICES

With plain (uncarved) print block.

To print pounds, $4\frac{5}{8} \times 2\frac{1}{2} \times 2\frac{3}{4}$	\$3 50
Or half-pounds, $4\frac{5}{8} \times 2\frac{1}{2} \times 1\frac{3}{16}$	3 50
To print two pounds, $4\frac{5}{8} \times 5 \times 2\frac{3}{4}$	4 00
Or two pounds, 6×3	4 00
Or single pounds, $4\frac{5}{8} \times 5 \times 1\frac{3}{16}$	4 00

EXTRAS

Frame.....	\$1 10
Post.....	60
Cap.....	40
Clamp.....	20
Clamp Screw.....	05
Slide.....	40
Slide Screw, each.....	05

THE REID'S AUTOMATIC IRON CLAD

The sides and ends are hinged independent of each other, and open and close automatically with the raising and lowering of the lever.

SIZES AND PRICES

For either pound or half-pound printer.....	\$15 00
For both pound and half-pound printer combined.....	20 00

BUTTER MOULDS

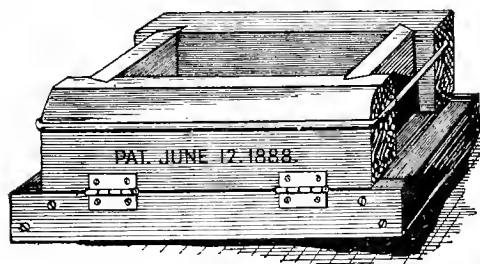
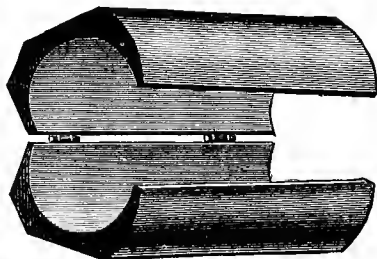
"CALIFORNIA" MOULD

BRASS HINGES. ROLL.

This cut represents a mould used extensively on the Pacific coast, and preferred there to all other forms. It is a very convenient shape and makes a nice-looking roll, desirable for the market, and is being adopted in other sections of the country by butter-makers and packers for shipping purposes. Made in one size only.

PRICE

Two-pound California Moulds, each, ... \$1 00



"AYERS" BUTTER MOULD

A first-class mould for small dairies.

PRICES

Pound mould, ... each, \$1 25

Half-pound mould, ... " 1 15

"IDEAL" HAND MOULD

A durable and satisfactory Mould at a moderate price.

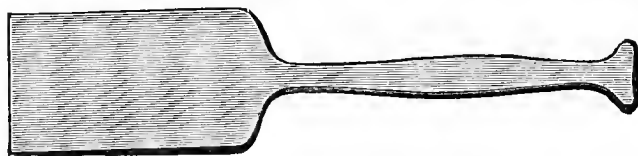
Price each, 90 cts

WOODEN BUTTER KNIVES

Price each, 15 cts



BUTTER SPADE



Width, 5½ inches. Length, 31 inches.

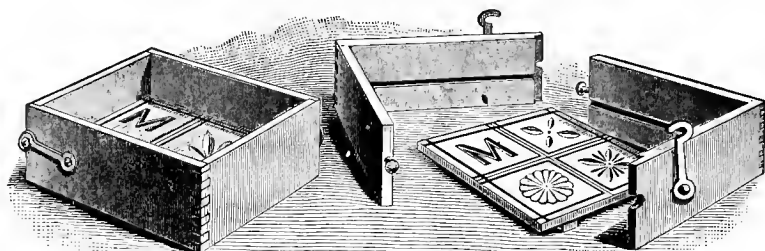
Made of fine hard maple, thoroughly seasoned and well finished.

Price each, 60 cts

BUTTER MOULDS.

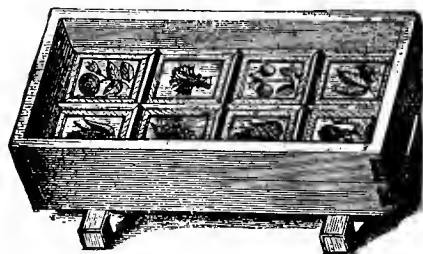
BLANCHARD.

LATEST, CHEAPEST, BEST.



Half-pound.....\$1 00 One-pound.....\$1 25 Two-pound.....\$1 75

It has been made to supply the demand for a simple, durable, cheap and practical mould which will release the butter after the mould is filled, without pushing or sliding the butter through a rigid form, which always injures the grain.

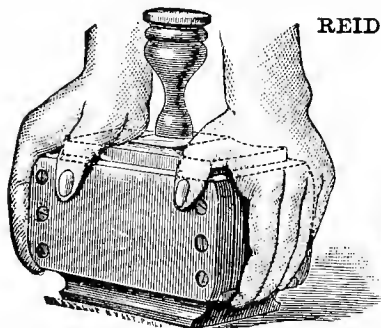


COMBINATION BUTTER PRINTS.

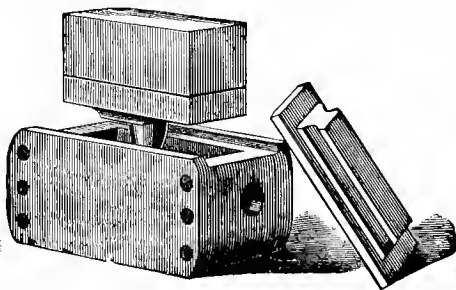
This mould, which holds 2 lbs., is divided into 8 cakes, $\frac{1}{4}$ lb each, with a cutter which goes with each print. The butter is pressed into the mould onto the face of print with a paddle, which is also used as a stick to strike off surplus butter.

No.	No. of cakes each impression,	Capacity of each cake in ounces,	Dimensions of each cake,	
1.	3	4	8	$3\frac{1}{2} \times 3\frac{1}{8}$.....\$3 50
3.	4	4	8	3 x 3..... 3 75
5.	4	4	4	$2\frac{1}{2} \times 2\frac{1}{2}$ 3 75
7.	6	4	4	$3\frac{1}{2} \times 1\frac{3}{4}$ 4 25
9.	16	1	1	$1\frac{1}{4} \times 1\frac{1}{2}$ 5 00
12.	8	8	8	$2\frac{3}{4} \times 2\frac{1}{2}$ 4 50

Any other combination of any size cake made to order.



REID'S FAMILY BUTTER MOULD.



$\frac{1}{2}$ lb.....\$1 50 1 lb.....\$1 50
2 lb..... 2 50

The Blanchard and Combination are special moulds, made on orders and shipped from factory.

BUTTER MOULDS AND LADLES.

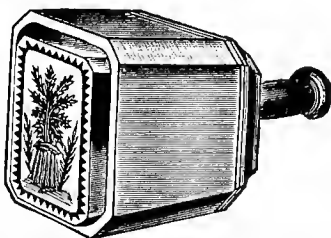
SQUARE MOULDS.

SIZES AND PRICES.



One Ounce Square Mould.

	Each.	Per doz.
$\frac{1}{16}$ lb.	\$0 15	1 60
$\frac{1}{4}$ lb.	25	2 75
$\frac{1}{2}$ lb.	30	3 00
1 lb.	35	3 75



One Pound Square Mould

ROUND MOULDS.

SIZES AND PRICES.



Individual Mould.

	Each.	Per doz.
$\frac{1}{16}$ lb.	\$0 10	90
$\frac{1}{4}$ lb.	15	1 75
$\frac{1}{2}$ lb.	20	2 00
1 lb.	25	2 50
2 lb.	30	3 00



One Pound Mould.

Initial letters carved on moulds, if desired, at a small extra expense.

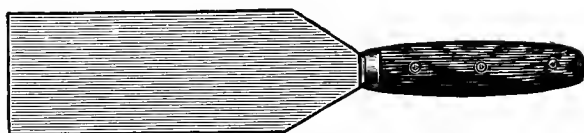
NEW YORK LADLES.



SIZES AND PRICES.

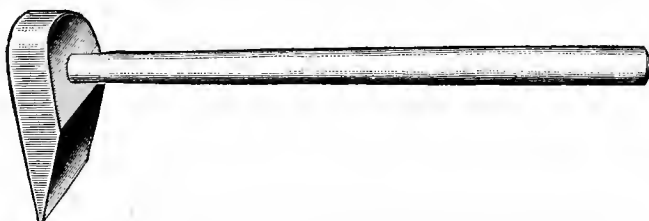
	Each.	Per doz.
Small	\$0 20	1 50
Medium	30	3 00
Large	50	5 00

STEEL BUTTER SPADE.



Wooden handle, 8 inch steel blade, nickel plated, each.....\$1 00

ACME BUTTER PACKER AND SCRAPER.



Made of hard white maple. Length of handle, 23 inches. The best and most serviceable butter packer made, as it can be used to trim the packages.

Price, each.....\$0 75

BUTTER PACKER.

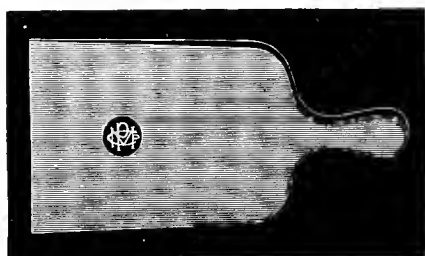
Head,
8½x3 inches.



Length,
29 inches

The approved and most popular shape. Turned by hand from one piece of seasoned hard maple. The best finished packer on the market.

Price, each.....\$0 60



FACTORY LADLE

Size 16 in.x7½ in.—Large

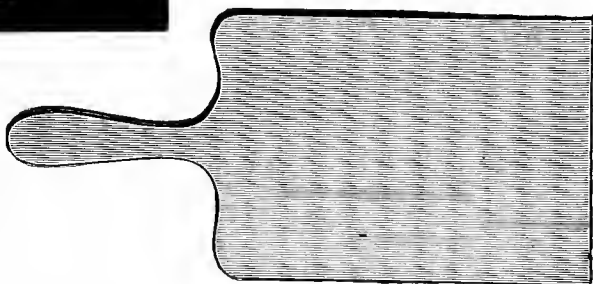
Price, each.....\$0 40

" per doz.... 4 00

Size 12 in.x6 in.—Medium

Price, each.....\$0 30

" per doz.... 3 00



DAIRY LADLE.

Size, 12 in. x 6 in.

Price, each.....\$0 25

" per dozen..... 2 50

ASH TUBS

“ELGIN” STYLE—HAND MADE



These tubs are made from strictly prime White Ash, the stock being first thoroughly air-dried and then kiln-dried just enough to extract all the sour sappy substance from the timber.

In addition to the above drying we still further cure the wood by fire heating in the process of manufacture. This thoroughly softens and sweetens the timber, and thus reduces the possibility of moulding to the minimum.

Our facilities are extensive and of the very best, which enables us to make uniform, solid and brine-tight packages. These are advantages which no other manufacturers of this style of package possess.

A large majority of the *Commission Houses* and large *Butter Manufacturers* use and recommend this package. It is without doubt the best Butter Package now on the market.

Many so-called *Hand-Made Tubs* are made from stock which has simply been air-dried. They shrink and fall down and are wholly unfit for butter, often spoiling it, and entailing a loss many times the cost of the package.

SIZES AND DIAMETERS FOR CIRCLES

Sizes	Diameter Top, Inches.	Diameter Bottom, Inches.	Sizes	Diameter Top Inches.	Diameter Bottom, Inches.
10 lbs.....	8½	6	56 lbs.....	14½	11½
20 “.....	11	8½	60 “.....	15	12
24 “.....	12	9½	70 “.....	16	12½
25 “.....	11½	8½	80 “.....	16½	13½
30 “.....	12	9½	90 “.....	17½	14½
40 “.....	13	10½			

For Prices see our Monthly Price Current

SPRUCE TUBS

"VERMONT"



The Boston Market, at least, prefers a Spruce Tub and gives preference to butter—other things being equal—packed in this style of packages. We have working arrangements with several spruce tub factories whereby we are able to furnish the **Best Spruce Tub**s the market affords at reasonable prices and in quantities of one nest or a car load, and guarantee quality. We furnish both the hand and machine-made.

"STEARN'S" STYLE—HAND MADE

SOLD IN FULL NESTS ONLY

SIZES AND DIAMETERS FOR CIRCLES

	Diameter Top. Inches.	Bottom. Inches.
23 lbs.....	10½	9
37 ".....	12	10½
57 ".....	13½	12
30 ".....	12	10
40 ".....	12½	10½
60 ".....	15	12½

These are beyond question the finest Spruce Tub>s ever produced. If you are going to store butter in Spruce Tub>s **By All Means** use this Tub. They cost a trifle more to start with, but are cheaper in the end.

"STANDARD" STYLE — MACHINE MADE

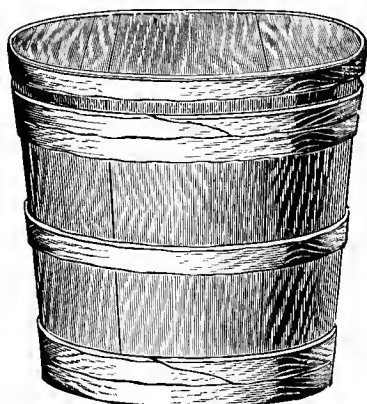
SIZES AND DIAMETERS FOR CIRCLES

	Diameter Top. Inches.	Bottom. Inches.
Singles, 5 lbs.....	6	5½
" 10 ".....	8½	6¾
" 20 ".....	10½	8½
" 25 ".....	11	10
" 30 ".....	12	10
" 40 ".....	12½	10½
" 50 ".....	13½	11
" 60 ".....	15	12½

We can match up cars of Spruce Tub>s and other packages

For Prices see our Monthly Price Current

MACHINE-MADE ASH TUBS



This package is sometimes preferred by Grocerymen. It is smoother, but not as durable as the hand-made tub.

DIMENSIONS

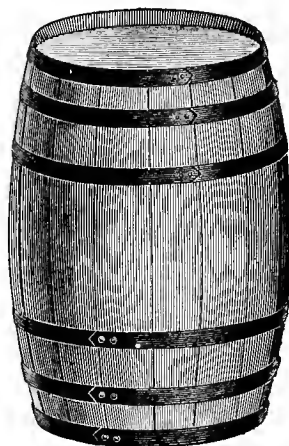
Diameter	Top	Bottom
10-lb.....	8½ in.	6½ in.
25 ".....	11 "	8½ "
40 ".....	13½ "	10½ "
60 ".....	15 "	12 "

PRICE

10-lb...each., \$...	
25 " " " " " " " "	
40 " " " " " " " "	
60 " " " " " " " "	

BUTTER FIRKINS

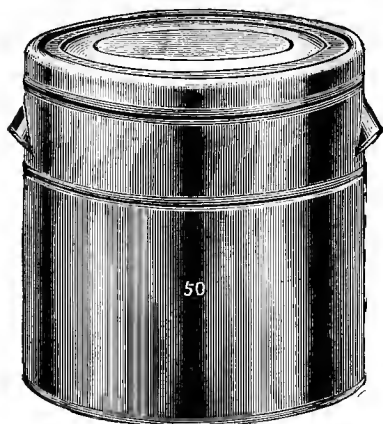
This package is used principally for Cold Storage and Export. They are made from White Oak and are nicely finished. We can furnish them with Galvanized Iron or Wood Hoops.



SIZES

110-lb. Wood Hoop, each	\$.....
110 " Galvanized Hoop, each	

TIN BUTTER PAILS AND CANS



PLAIN TIN



TAPER

3-lb. Taper, per 100.....	\$.....	3-lb. Taper, per 100.....	\$.....
5 " " " " 100.....		5 " " " " 100.....	
10 " " " " 100.....		10 " " " " 100.....	
20 " " " " 100.....		20 " " " " 100.....	
25 " Straight, per 100.....		25 " Straight, per 100.....	
50 " " " " 100.....		50 " " " " 100.....	

See Monthly Price Current for Prices

"BRADLEY" BUTTER BOXES



Bradley Boxes

Vermont Spruce is the only wood employed in their manufacture and is, in its native state, so nearly free from all odor that butter may be kept in it without absorbing any flavor whatever. The top and bottom rims are made of tin, which does not come in contact with the butter. These elegant and substantial packages range in capacity from one-half to ten pounds. They preserve the butter either perfectly air tight or practically so, in prints of full packed packages, perfectly free from woody flavor, excess of salt and external influence of any kind. Each package may be opened and examined and closed again, and may be kept by consumer in any convenient place without fear of the butter getting any taint from food or impure air, or odors of cooking.

We keep in stock at all times the following sizes and these only:

SIZES AND PRICES

½ lb. Boxes, in crates holding 60 boxes, 30 lbs. butter, weight including crate, 13 lbs., diameter 4 inches.....	per crate, \$
1 lb. Boxes, in crates holding 48 boxes, 48 lbs. butter, weight, including crate, 13 lbs., diameter 4 inches.....	per crate, ...
2 lb. Boxes, in crates holding 24 boxes, 48 lbs. butter, weight 13½ lbs., including crate, diameter 4½ inches.....	per crate, ...
3 lb. Boxes, in crates holding 16 boxes, 48 lbs. butter, weight 11½ lbs., including crate, diameter 5½ inches.....	per crate, ...
5 lb. Boxes, in crates holding 12 boxes, 60 lbs. butter, weight 12½ lbs., including crate, diameter 6½ inches.....	per crate, ...
10 lb. Boxes, in crates holding 6 boxes, 60 lbs. butter, weight 12 lbs., including crate, diameter 8½ inches.....	per crate, ...

For prices see price current

SIZES OF SIDE LININGS

FOR BRADLEY BOXES

			CIRCLES
3 lbs	3¾ inches x 18 inches	5½	
5 "	4¾ " x 22 "	6½	
10 "	6 " x 25½ "	8½	

For complete lining include two circles.

BAIL BOXES

These boxes are very popular among shippers and consumers. Butter packed in them finds a readier and often a better market, as they are very handy, as well as neat in appearance. They are put up in crates of six. They should be lined with parchment paper before filling.

SIZES, DIMENSIONS AND PRICES

	TOP	BOTTOM	PER DOZ.
7½ lbs.....	8⅝ inches	8⅝ inches	\$.....
8 "	8⅝ " "	8⅝ " "	.....
9 "	8⅝ " "	8⅝ " "	.....
10 "	8⅝ " "	8⅝ " "	.....
16 "	10⅝ " "	10⅝ " "	.....

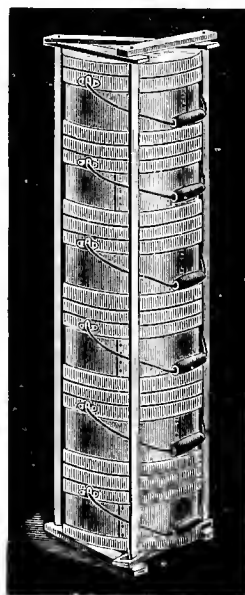
For net prices see price current.

SIZES OF SIDE LININGS

FOR BAIL BOXES

			CIRCLES
7½ lbs.....	5 inches x 25 inches.	8½	
8 "	5 " x 26 "	8½	
9 "	5½ " x 26 "	8½	
10 "	6½ " x 26 "	8½	
16 "	6½ " x 32 "	10½	

For complete lining include two circles.



Bail Boxes

ROUND SPRUCE BUTTER BOX

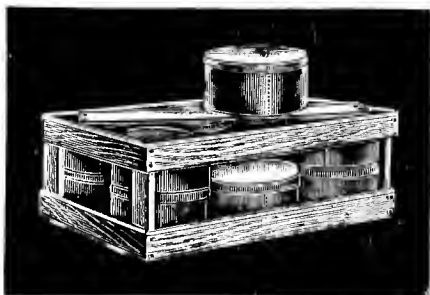
These boxes are made from Vermont spruce, with strong tops and bottoms, and are so substantial that they can be shipped singly.

An elegant and practical butter package. Try them. Made in one size only.

PRICE

Per cr't of 12 5-lb. boxes, Diam. 7 in., \$....
Dimensions of Side Linings 4 in. x 24 in.

When ordering linings state whether or not circles are wanted.



THE GEM FIBRE BUTTER PACKAGE

The **Neatest, Cheapest** and **Best** small Butter Package ever made.

This package is the result of years of study and experiment. It is made of waterproof Jute Board, and is lined with the very best quality of parchment, making it **Clean, Tasteless** and **Odorless**. It is constructed without seams or open joints, being made one solid piece under heavy pressure, hence it is **Strong** and **Neat**. Owing to the material used it is **Light**. It has more desirable features than any package on the market. These packages are put up in cases for carrying butter to distant markets or in bulk for local trade.



Price List in Cases

	Per Case.
1-lb. box, 48 in case.....	
2 " " 24 "	
3 " " 16 "	
4 " " 12 "	
5 " " 12 "	
6 " " 8 "	
10 " " 6 "	
15 " " 4 "	

Price List in Bulk

	Per 100.
1-lb. boxes, each weighing 1½ oz. at.....	
2 " " " " 2½ "	
3 " " " " 3 "	
4 " " " " 3½ "	
5 " " " " 4 "	
6 " " " " 4½ "	
8 " " " " 7 "	
10 " " " " 8 "	
15 " " " " 10 "	
20 " " " " 11 "	

Small cases are made tight, with hand holes in end. These packages are also shipped in bulk, two or more sizes nested, 100 or more each size in light cases.

DUMAS' IMPROVED SPRUCE BUTTER BOX

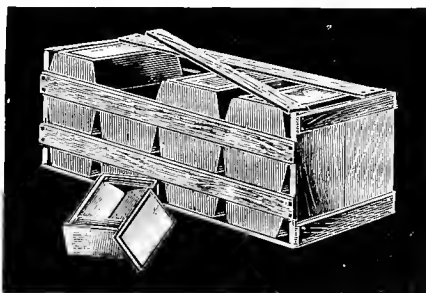
This is a strong, well-made and smoothly-finished spruce box, put together with locked corners.

The sides of the package are tapered, allowing the box to be stripped from the butter easily, and the covers, being cut away at the edges, as shown in the illustration, fit perfectly.

Each box is lined with parchment paper.

SIZES AND PRICES

3-lb., per crate of 24 boxes.....	\$.....
5 " " " 12 "	



Both the Dumas and Round Spruce Boxes are in especial favor in the Boston market. Send us a sample order.

For Prices and Discounts see our Monthly Price Current

BUTTER PACKAGES

"SAYRE"

TIN LINED

SIZES AND PRICES

50-lb., per 100.....	\$.....
30 " " 100.....	
20 " " 100.....	
10 " " 100.....	
5 " " 100.....	

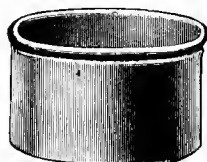
"RECORD"

TIN LINED

SIZES AND PRICES

14-lb., weight 4 lbs., per 100.....	\$.....
24 " " 6 " " 100.....	
30 " " 6 " " 100.....	
50 " " 9 " " 100.....	
60 " " 10 " " 100.....	

STONE JARS



1-lb.,	Common, diam. 4 inches.....	each, \$.....
2 "	" " 5 "	" " " " " " " "
4 " or 5-lb.,	" " 6½ "	" " " " " " " "
8 " " 10 "	" " 8 "	" " " " " " " "
16 "	" " 8¾ "	" " " " " " " "
2 "	Whiteware, " 5 "	" " " " " " " "
4 " or 5-lb.,	" " 6½ "	" " " " " " " "
8 " or 10 "	" " 8 "	" " " " " " " "

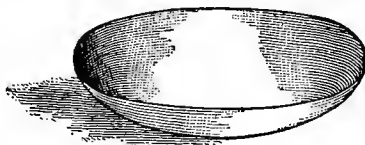
NOTE.—The 4-lb. and 5-lb. are the same size jars, also the 8-lb. and 10-lb., but should be filled a little more or less according to the amount desired.

BUTTER PLATES

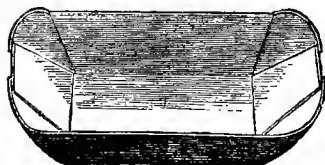
These are very handy packages for putting up butter for retail trade. We have them in two styles, put up in crates of 250 each.

OVAL WOOD

No. 1, 1-lb., 250 in package, per 1,000....	\$....
" 2, 2 " 250 " " " 1,000.....	
" 3, 3 " 250 " " " 1,000.....	
" 5, 5 " 250 " " " 1,000.....	



OVAL



PATENT

MAPLE, WIRE END

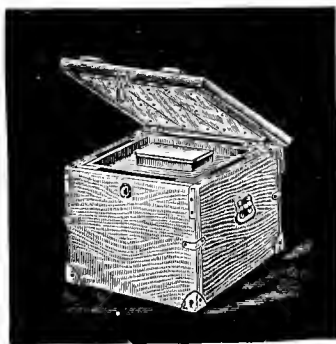
No. 0, ½-lb., 250 in package, per 1,000 \$.....	
" 1, 1 " 250 " " " 1,000.....	
" 2, 2 " 250 " " " 1,000.....	
" 3, 3 " 250 " " " 1,000.....	
" 5, 5 " 250 " " " 1,000.....	

For Prices see Our Monthly Price Current

IMPROVED BUTTER SHIPPING BOXES.

These boxes are made of seasoned lumber, iron-bound at the edges and capped at the corners, as shown in the engraving. Detachable hinges are used for the lid, which cannot be strained or easily broken.

The trays for the butter are let down into the box, one upon another, and may be put in or lifted out with the butter in them. A movable ice-box is placed in the center; when this is not used, a strip, provided for the purpose, may be placed at the bottom of each tray to fill up the space.



PRICE LIST OF WOOD TRAY.

Capacity 12lbs.....	\$3 50	Capacity 56lbs.	\$5 00
“ 20lbs.....	3 75	“ 80lbs.....	5 50
“ 30lbs.....	4 25	“ 96lbs.....	5 75
“ 40lbs.....	4 75	“ 120lbs.....	6 00

Can furnish the Tin Tray Boxes on special orders.

PRICE LIST OF TIN TRAY BUTTER BOX.

Capacity, 6lb prints.....	\$3 75	Capacity, 2— $\frac{1}{2}$ lb prints.....	\$2 25
“ 8lb “.....	4 00	“ 6— $\frac{1}{2}$ lb “.....	3 75
“ 12lb “.....	4 50	“ 12— $\frac{1}{2}$ lb “.....	4 00
“ 18lb “.....	5 50	“ 24— $\frac{1}{2}$ lb “.....	5 00
“ 30lb “.....	6 25	“ 36— $\frac{1}{2}$ lb “.....	6 00
“ 40lb “.....	7 00	“ 64— $\frac{1}{2}$ lb “.....	7 00
“ 56lb “.....	7 50	“ 80— $\frac{1}{2}$ lb “.....	7 50
“ 80lb “.....	8 25	“ 100— $\frac{1}{2}$ lb “.....	8 25

BUTTER STANDS.

Made from the very best white oak. Used largely by dealers for shipping country or store butter to be re-worked.

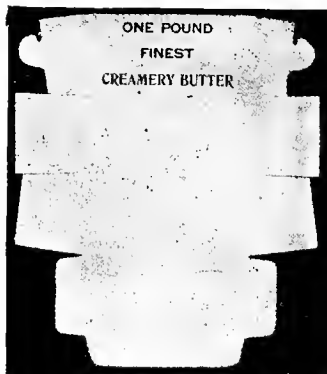
Heavy and very durable.

SIZES AND PRICES.

125lb, each.....	\$1 35
150lb, “.....	1 45
175lb, “.....	1 75
200lb, “.....	1 85
Butter Stands shaped like 60-lb. Ash Tubs.	
100-lb., each.....	\$1 50
150-lb., “.....	1 60
200-lb., “.....	1 75



SINGLE PRINT BUTTER BOXES



KNOCKED DOWN

"Ideal" Manilla Print Butter Package

These boxes are made to hold the Regulation 1-pound print. They are made from a single sheet of manilla paper cut to form, and creased so as to fold up into a neat and very attractive package.

Size, made up, $2\frac{3}{4}$ inches x $2\frac{7}{8}$ inches x $5\frac{3}{8}$ inches.

PRICES

250 to 500 Lots....	Per 1,000, \$
750 Lots.....	"
1,000 "	"
5,000 "	"
10,000 "	"
50,000 "	"

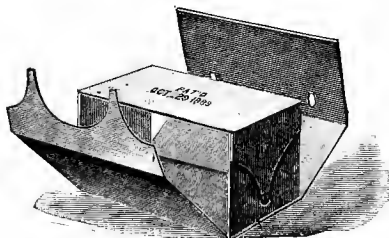
Special quotation on larger quantities.

Printing cards on boxes in quantities less than 5,000, \$..... per order. Over 5,000 no extra charge.



MADE UP.

PIKE'S VENEER WRAPPER FOR PRINT BUTTER



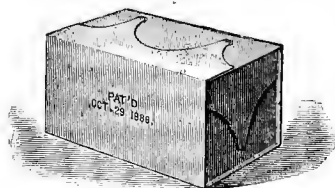
BOX OPEN.

The advantages of this package are:

ITS EXCEEDING LIGHTNESS, SAVING EXPRESS CHARGES.
IT SAVES FREIGHT CHARGES ON RETURN BOXES.

Each print wrapped securely and separately, and the name and address of the producer may be stamped on the outside of each package.

This box is constructed of two thin veneer pieces of hard wood, and has score cuts so it will fold around the standard size print, covering it completely and thoroughly protecting it. (The standard size of print is $4\frac{3}{8}$ x $2\frac{1}{2}$ x $2\frac{3}{8}$ inches.)



BOX CLOSED.

PRICES

Wrappers, complete without crates.....per 100, \$....

For Prices see our Monthly Price Current

"AUSTRALIAN" BUTTER BOXES**WHITE SPRUCE**

THE
LIGHTEST

THE
BRIGHTEST

THE BEST**AUSTRALIAN PACKAGE ON THE MARKET**

The extreme lightness of these boxes will effect a saving in freight alone, between our factory and the consumer of the butter, of from five to eight cents on every package. Outside of this they are beyond all question the finest package made for storage butter that will be satisfactory for foreign shipment. They are the regulation size, 12x12x12 inside measure; the sides, tops and bottoms are each of one piece. These boxes are finely finished inside and out and are cut true to gauge and nail up perfectly. They

IMPART NO BAD FLAVOR TO BUTTER

The superiority of spruce for butter packages has long been recognized, and we are offering our customers the very best box that can possibly be made for butter.

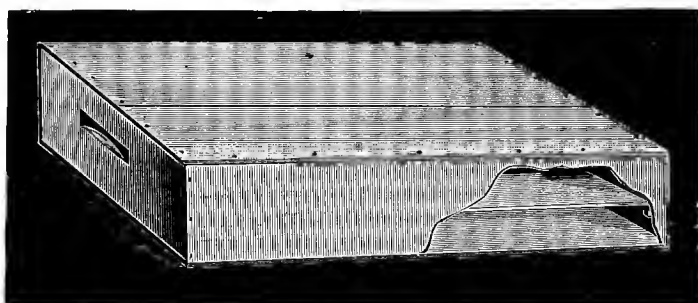
PRICES

In lots less than 100.....	each, \$....
" " of 100.....	"
" " " 200 to 400.....	"
" " " 500.....	"
In carload lots.....	special

Can also furnish White Wood and Poplar Australian Boxes at lowest market prices.

For Prices see our Monthly Price Current

BUTTER PRINT BOXES



These boxes are made from poplar, planed one side and very neatly finished. The ends are made with hand hole as shown in cut. We furnish these boxes in the K. D. only. The freight charges are much less shipped this way, and it costs but a trifle to put them together. They should be lined with parchment paper before using.

Capacity	Size of Print	Number of partitions	Dimensions			Thickness of		Price.
			Length	Width	Height	Sides, tops, bottoms & partitions	Ends	
30 lbs.	1 lb.	None	13 in.	8 in.	9 $\frac{3}{4}$ in.	$\frac{3}{8}$ in.	$\frac{5}{8}$ in.	Ea. \$....
40 "	$\frac{1}{2}$ "	"	23 "	14 $\frac{3}{4}$ "	4 $\frac{3}{4}$ "	"	"	" " "....
40 "	1 "	"	13 "	10 $\frac{5}{8}$ "	9 $\frac{5}{8}$ "	"	"	" " "....
50 "	1 "	"	13 "	13 "	9 $\frac{3}{4}$ "	"	"	" " "....
54 "	1 "	"	23 $\frac{1}{4}$ "	14 $\frac{1}{2}$ "	5 $\frac{1}{8}$ "	"	"	" " "....
60 "	1 "	"	22 "	10 "	12 "	"	"	" " "....
60 "	1 "	One	24 "	14 $\frac{3}{4}$ "	6 "	"	"	" " "....
72 "	2 "	None	20 "	12 $\frac{1}{2}$ "	9 "	"	"	" " "....

NUMBER AND SIZES OF PARCHMENT LINERS COMPLETE FOR ABOVE BOXES

30 lbs.,	no	partition,	two	sheets,	8	x	13	in.	and	one	sheet,	8	x	46	in.
80- $\frac{1}{2}$ lbs.	"	"	"	"	15	x	24	"	"	two	sheets,	5	x	40	"
40 lbs.	"	"	"	"	11	x	13	"	"	"	"	10	x	24	"
50 "	"	"	"	"	13	x	13	"	"	"	"	10	x	28	"
54 "	"	"	"	"	14 $\frac{1}{2}$	x	24	"	"	"	"	5 $\frac{1}{2}$	x	40	"
60 "	"	"	"	"	10	x	22	"	"	"	"	12	x	36	"
60 "	one	"	four	"	15	x	24	"	"	"	"	6	x	40	"
36-21 lbs.	no	"	two	"	12 $\frac{1}{2}$	x	20	"	"	"	"	9	x	36	"

BURLAPS

If you want your packages to arrive at destination in nice shape, use burlaps on them. They should always be used where butter is to be shipped long distances or put in storage.

SIZES AND PRICES

10-lb. tub size	.....	each, \$....
20 to 25-lb. tub size	.....	" \$....
30 " 40 "	.....	" \$....
50 " 60 "	.....	" \$....
70-lb. tub size	.....	" \$....
Australian Butter Box size	.....	" \$....

PARAFFINE

Used for coating the inside of butter boxes and small tubs.

PRICES—BEST GRADE

Per pound	.....	\$....
25-lb. tubs	.....	per lb.



For Prices on above goods see Price Current

EGG CASES AND FILLERS

"IDEAL" ODORLESS COLD STORAGE FILLERS

We call your **special attention to our "Ideal" Odorless Cold Storage Filler.**

The finest, most uniform and perfect cold storage filler on the market, superior to all others, absolutely **damp proof** and the most economical filler to use. Made in medium weight only, 10 fillers and 10 flats furnished to the set, weight $2\frac{3}{4}$ lbs.

Write us for samples and prices.

"MARSEILLES" VENTILATED FILLER

The Best is Always the Cheapest

Notice the lock shown in cut. It cannot pull apart, absolute and perfect ventilation, clean cut, best quality, a perfect filler. Furnished in No. 2 weight. Write us for samples and prices.

"MARSEILLES" HAND MADE FILLER

Thoroughly Solid Lock, Clean cut, made in all weights

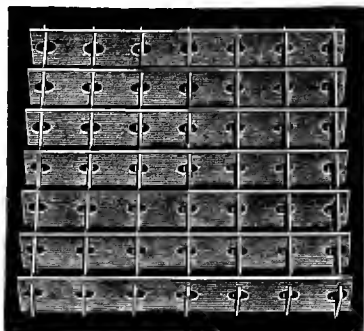
STANDARD WEIGHTS OF FILLERS

No. 1. $3\frac{1}{4}$ to $3\frac{1}{2}$ lbs. to a 30-dozen set.
Med. $2\frac{3}{4}$ lbs. " "
No. 2. $2\frac{1}{4}$ " " "

FILLER CASES

We can furnish No. 1 Pine Cases, and No. 2 Pine or W. W. Cases, 30 or 36-dozen size as desired.

No. 2, 30-dozen W. W. Cases furnished unless otherwise ordered.



FILLERS ARE PACKED AS FOLLOWS:

10 sets No. 1	Fillers in a 30-dozen	Filler Case	15 sets Medium	Fillers in a 36-dozen	Filler Case
12 " " 1	" " 36	" " "	15 " No. 2	" " 30	" " "
12 " Medium	" " 30	" " "	18 " " 2	" " 36	" " "

One set of fillers enough for one case when set up.

DIVISION BOARDS OR FLATS

CAN FURNISH EITHER STRAWBOARD OR ODORLESS

No. 1	per 1,000.....	\$.....	per 100.....	\$.....
Medium	.....".....	.....	.....	.....
No. 2	.....".....	.....	.....	.....

EGG CASES

We have facilities larger than ever, and are prepared to furnish all qualities in any quantities on short notice. Special attention is called to our solid veneer white wood shipping cases, the clearest and neatest case made. We carry a large supply on hand at all times.

No. 1. Sawed and planed,	30 dozen	Whitewood, each,	\$....
" 1. " " " 30	"	Pine.....	"
" 1. " " " 36	"	"	"
" 2. " " " 30	"	Whitewood	"
" 2. " " " 36	"	"	"
" 2. Smooth sawed	30	Pine.....	"
" 2. " " " 36	"	"	"
" 2. Veneer S. & D. ends	30	Whitewood	"
" 2. " " " 36	"	"	"

We furnish these either K. D. or set up. K. D. Cases sent on orders unless otherwise specified. Be careful to mention capacity and quality of cases when ordering. Carload orders especially solicited. Write for prices.



NAILS

Cement coated....per keg, \$....
Plain.....".....

EXCELSIOR

Fine.....Per 100 lbs, \$....
Fine, ton lots.....per ton, ...

CORK SHAVINGS

Per pound.....\$....
5-sack lots.....per lb.
Sacks.....extra.

CAR LOADS

We make a specialty of carload business, in Cases, Fillers and Excelsior.
Write for Delivered Prices.

For Prices see our Monthly Price Current

POULTRY BOXES

Our Poultry Boxes are made from sound lumber, nicely finished, and always give satisfaction. Prices F. O. B. Factory.

	Ends	Sides, Tops Bottoms	Estimated Weight	PINE			Ends	Sides, Tops Bottoms	Estimated Weight	PINE		
				Price	each					Price	each	
No. 1. 34x22x12..	in.	5/8 in.	34 lbs	.....	.....	No. 23. 36x18x 8..	7/8 in.	5/8 in.	25 lbs	.....	.....	
" 2. 34x22x14..	"	"	37 "	.....	.....	" 24. 36x18x13..	"	"	33 "	.....	.....	
" 3. 30x22x12..	"	"	29 "	.....	.....	" 25. 20x14x 6..	"	7/8 in.	9 "	.....	.....	
" 4. 30x22x12..	"	7/8 in.	32 "	.....	.....	" 26. 34x18x 9..	"	"	19 "	.....	.....	
" 5. 36x18x13..	"	"	24 "	.....	.....	" 27. 20x16x15..	"	"	17 "	.....	.....	
" 6. 36x18x14..	"	"	25 "	.....	.....	" 28. 36x19x15..	"	5/8 in.	46 "	.....	.....	
" 7. 34x18x13..	"	"	23 "	.....	.....	" 29. 34x22x12..	"	7/8 in.	26 "	.....	.....	
" 8. 34x18x 8..	"	"	17 "	.....	.....	" 30. 34x22x14..	"	"	30 "	.....	.....	
" 9. 34x18x 7..	"	"	17 "	.....	.....	" 31. 26x14x 8..	"	"	13 "	.....	.....	
" 10. 28x16x10..	"	"	17 "	.....	.....	" 32. 34x20x13..	"	"	26 "	.....	.....	
" 11. 28x14x 9..	"	"	15 "	.....	.....	" 33. 34x20x12..	"	"	25 "	.....	.....	
" 12. 26x24x13..	"	"	25 "	.....	.....	" 34. 34x18x12..	"	"	23 "	.....	.....	
" 13. 36x18x14..	"	5/8 in.	34 "	.....	.....	" 35. 26x24x15..	"	"	28 "	.....	.....	
" 14. 36x18x10..	"	"	25 "	.....	.....	" 36. 36x19x15..	"	"	30 "	.....	.....	
" 15. 30x18x10..	"	7/8 in.	19 "	.....	.....	" 37. 32x19x11..	"	"	30 "	.....	.....	
" 16. 30x18x 8..	"	7/8 in.	22 "	.....	.....	" 38. 20x16 1/2 x15 1/2	"	"	30 "	.....	.....	
" 17. 30x18x 8..	"	7/8 in.	16 "	.....	.....	" 39. 22x16x12..	"	"	30 "	.....	.....	
" 18. 36x20x13..	"	7/8 in.	36 "	.....	.....	" 40. 30x20x12..	"	5/8 in.	30 "	.....	.....	
" 19. 36x20x13..	"	7/8 in.	27 "	.....	.....	" 41. 24x20x10..	3/4 in.	"	.....	.....	.....	
" 20. 34x22x12..	"	7/8 in.	45 "	.....	.....	" 42. 23x16x 8..	"	"	.....	.....	.....	
" 21. 36x18x 8..	"	7/8 in.	18 "	.....	.....	" 43. 36x22x13..	7/8 in.	"	40 "	.....	.....	
" 22. 36x18x 7..	"	"	18 "	.....	.....	" 44. 32x17x10..	"	"	15 "	.....	.....	

OTHER SIZES FURNISHED

Special Delivered Prices in Carload Lots.

NOTICE.--WE SHIP PINE WHERE KIND IS NOT SPECIFIED IN ORDER

For Prices see our Monthly Price Current

"DUFFY" BERRY BOX, FRUIT CASE AND CRATE OPENERS

HAMMER AND OPENER COMBINED

The best and only original upon the market, indispensable to creamery, cheese factory, commission and grocery men.

VEST POCKET BERRY BOX OPENERS

Furnished in 8 1/2 in. length over all.....each, \$0 50

CALIFORNIA FRUIT CASE OPENERS

Similar to Berry Box Opener, only heavier and longer and to be used on extra heavy boxes or cases.

Furnished in 9-in. and 12-in. length over all.

9-in. each, \$0 60

12 " " 75

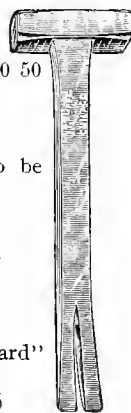
HIP POCKET CRATE OPENERS

Furnished in 9-in. lengths over all and with either "Standard" Weight Handle or "Extra Heavy" Handle

"Standard" or "Extra Heavy" Handle.....each, \$0 75



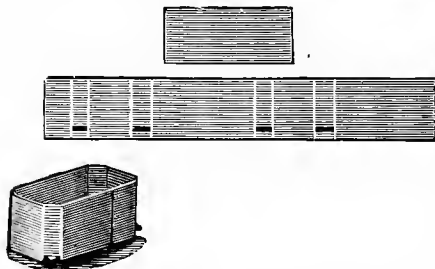
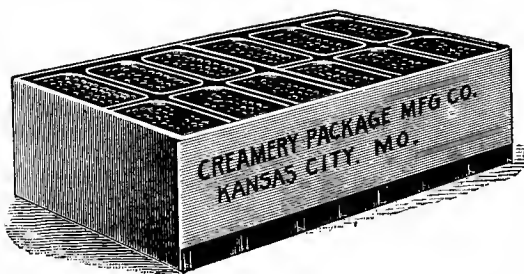
Berry Box
Opener



Crate Opener

"LESLIE" BERRY BOXES AND CRATES

This cut represents the crate used for shipping the Leslie quarts. The ends of the crates are made of best half-inch lumber; planed sides, bottoms and tops of veneering, as shown in cut.



This box is made from two pieces of poplar lath, as represented in the cut at the left. In making, bend the band from the grooves around the corners of the bottom to project through the mortises in the band. Be particular to keep the short lap of the band outside. Only three tacks are necessary in making.

We carry a large stock of these boxes, and are prepared to fill your orders promptly.

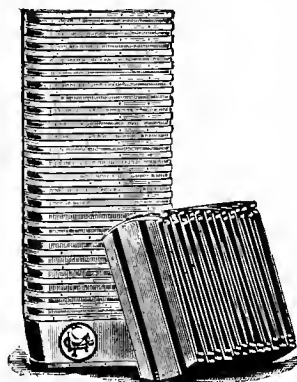
GRAPE BASKETS

The most popular Grape Basket in use



The above have board bottoms and tight covers, and are generally considered the most popular basket in use. Handles are shipped separate in order to nest the baskets. See cut at the right.

We make the light wire staples all ready for fastening cover. No trouble to put on.



Baskets nested for shipment

THIRD-BUSHEL BOX

For Peaches, Pears, Apples, Quinces and Tomatoes



This is the standard box in the West and South. It is composed of three pieces of heading, 5x8 inches, half-inch thick; two pieces of veneering, 8x22 inches, for sides; two pieces, 4x22 inches, for top and bottom.

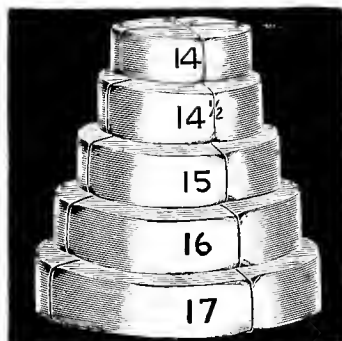
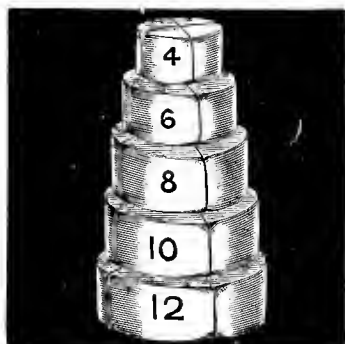
We also furnish without additional charge, same size box, with two pieces of veneering, 5x22 inches for top and bottom; four pieces of veneering, 31x22 inches, for sides. Unless specially ordered we always

send the former. Use 3d fine nails in making.

See Monthly Price List for Prices

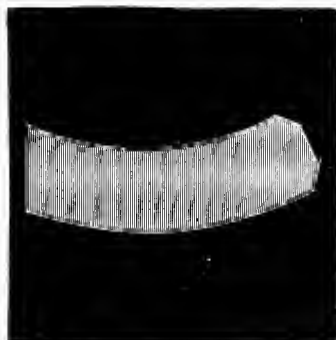
EXCELSIOR CLOTH CIRCLES AND SQUARES

THE BEST IN THE MARKET



PARCHMENT SQUARES AND TUB LINERS

FINEST QUALITY



"EXCELSIOR" CLOTH CIRCLES AND SQUARES

They are made from the heaviest of bleached cloth used for this purpose. We guarantee perfect Circles, full count and full weight. We are the largest manufacturers of these goods in the U. S., our machines having a capacity of 6,000 yds. of cloth per day. We have no hesitancy in claiming superiority for the Excelsior brand of Cloth Circles and Squares.

PARCHMENT CIRCLES AND SQUARES

Our facilities for manufacturing Parchment Circles and Squares are unexcelled. We use the very best grade of paper only, and have capacity for turning out large quantities of these goods. We are in position to fill large and small orders promptly upon receipt.

CLOTH AND PARCHMENT CIRCLES

SIZES AND PRICES PER M

In.	Paper	Cloth	In.	Paper	Cloth	In.	Paper	Cloth
4	\$0.45	\$0.70	8½	\$1.50	\$3.00	13	\$3.55	\$ 6.50
4½	.50	.85	9	1.70	3.35	13½	3.80	7.00
5	.55	1.10	9½	1.90	3.75	14	4.10	7.60
5½	.65	1.30	10	2.10	4.20	14½	4.40	7.85
6	.75	1.45	10½	2.30	4.50	15	4.70	8.00
6½	.90	1.65	11	2.55	4.75	15½	5.00	8.50
7	1.00	2.00	11½	2.75	5.25	16	5.35	9.00
7½	1.20	2.50	12	3.00	5.80	16½	5.70	9.50
8	1.35	2.75	12½	3.30	6.00	17	6.00	10.00

CLOTH AND PARCHMENT SQUARES

We cut our own squares and can fill orders promptly for odd sizes.

SIZES AND PRICES PER M

Size	Paper	Cloth	Size	Paper	Cloth	Size	Paper	Cloth
6x6	\$0.50	\$1.55	9x9	\$1.30	\$3.45	12x12	\$2.00	\$6.00
7x7	.85	2.10	10x10	1.40	4.30	10x15	2.25	6.10
8x8	1.00	2.85	8x11	1.35	3.55	12x15	2.35	6.50
8x9	1.15	3.25	9x12	1.50	4.35			

Special sizes cut to order.

PARCHMENT BOX LININGS

Experience has proven that Parchment Liners are among the most profitable supplies a creamery-man can buy. We carry a very large stock of heavy Liners and guarantee the quality of these goods.

SIDE LININGS FOR ROUND BUTTER PACKAGES

Size	List	Size	List	Size	List
2 x12 in. per M.	\$0.40	4¾x22 in. per M.	\$1.50	6 x26½ in. per M.	\$2.45
2¾x14 " "	.60	5 x25 " "	1.95	6½x26 " "	2.60
3¾x18 " "	1.05	5 x26 " "	2.00	6½x32 " "	3.20
4 x24 " "	1.50	5½x26 " "	2.10		

COMPLETE LININGS FOR PRINT BOXES

Size	List	Size	List	Size	List
5 x40 in. per M.	\$3.05	9x36 in. per M.	\$5.00	12 x36 in. per M.	\$6.60
5½x40 " "	3.40	10x22 " "	3.40	12½x20 " "	3.85
6 x40 " "	3.70	10x24 " "	3.70	13 x13 " "	2.60
8 x13 " "	1.60	10x28 " "	4.30	14½x24 " "	5.35
8 x46 " "	5.65	11x13 " "	2.20	15 x24 " "	5.50

Other sizes furnished at proportionate prices.

PARCHMENT TUB LININGS (Sides only)

When complete Liners are ordered, we send cloth for top and paper for bottom, with paper side linings, unless paper for the tops is ordered.

60-lb. tub size, per M.	\$15.00	40-lb. tub size, per M.	\$11.85	20-lb. tub size, per M.	\$8.40
56-lb. " "	14.50	30-lb. " "	11.50	10-lb. " "	5.00
55-lb. " "	14.00				

For price complete, add price of circles for top and bottom

AUSTRALIAN BOX LINERS

Per 100.	\$...	Per M.	\$...
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These Liners are heavy and made especially for these boxes.

PARCHMENT PAPER

16-in. rolls...per lb. \$...	36x40...per lb. \$...	24x36...per lb. \$...	36x60...per lb. \$...
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Special sizes furnished when desired.

WAXED PAPER

0x12, 400 sheets in package.	per pkg. \$...
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See our Monthly Price Current for Discounts and Prices

SALT

"GENESEE"



200-lb. barrels, paper lined, 1 to 10	each, \$.....
10 or more	"
224-lb. Irish linen sacks, 1 to 10	"
10 or more	"
56-lb. Irish linen sacks, 1 to 10	"
10 or more	"
28 lbs. in linen sacks, 1 to 10	"
10 or more	"
16-14 lbs. in English linen sacks, 1 to 10	"
10 or more	"
224-lb. English linen sacks, cheese, 1 to 10	"
10 or more	"
Fine grain dairy furnished at above prices.	
280-lb. barrels paste, per barrel	"
60-10. ash tubs, holding 56 lbs. net salt	"

A White, "Flaky" Grain, not too Fine—Made from Brine 99½ per cent Pure, Easily Dissolving and an Excellent "Keeper," Describes

MOULTON'S CADILLAC SALT

Sold at a reasonable price. Now in use by some of the largest butter manufacturers in the west.

BUTTER SALT

280-lb. bbls	\$.....
5 bbl. lots	discount
10	"
224-lb. sacks	each, ...
5 sack lots	discount, ...
10	"
56	"
5	lots
10	"

CHEESE SALT

280-lb. bbls	each, ...
5 bbl. lots	discount, ...
10	"



DIAMOND "CRYSTAL"

224-lb. in linen sacks, 1 to 10	each, \$.....
10 or more	"
280-lb. barrels, 1 to 10	"
10 or more	"
56-lb. in linen sacks, 1 to 10	"
10 or more	"

We also furnish Worcester and Vacuum Pan Salt at the lowest market price.

The Genesee Paste Salt is by far the finest on the market. Use it by all means—in the summer especially.

Can furnish full cars of dairy or mixed cars of dairy and barrel salt. Write for prices.

FOR PRICES SEE MONTHLY PRICE CURRENT





LACTIC FERMENT

OF PRICELESS VALUE TO BUTTER AND
CHEESE-MAKERS

A perfect and uniform flavor the year round



Among recent improvements in dairying, the careful ripening of the Cream for Butter, and of Milk for Cheese, by means of Pure Culture of Flavor-producing Bacteria, has done more than anything else for the production of first-class goods of **high flavor, perfect aroma, keeping quality and uniformity.**

This preparation, offered to the dairymen under the name of Chr. Hansen's Danish Lactic Ferment, was discovered by Prof. V. Storch, of Copenhagen, Denmark, and is prepared exclusively by Chr. Hansen's Laboratory. It is put up in two sizes of packages, one "large," for creameries and cheese factories, and another "small" package for private dairies.

CHR. HANSEN'S DANISH LACTIC FERMENT

is used in the creamery, the cheese factory or the dairy, to prepare "**Startoline**," which is made by adding the Ferment to pasteurized skimmed milk and let it stand to ripen for 18 to 24 hours. This Startoline is, in turn, used for ripening the cream for butter-making or the milk for cheese-making, and is propagated fresh every day by the dairyman himself.



How long the Startoline thus prepared can be maintained perfect without refuge to a fresh package of Lactic Ferment depends upon the care and cleanliness applied by the dairyman. Usually it is sufficient to renew the Startoline with fresh Lactic Ferment every two or three weeks only. About 20 packages a year will therefore be sufficient to maintain a supply of perfect Startoline, ensuring uniform flavor the year round.

Chr. Hansen's Lactic Ferment, being a dry powder, will keep for several months, if the seal of the package is not broken. It is therefore perfectly safe to order three packages at a time, and it is always advisable to have an extra package on hand, so as to start a fresh propagation of Startoline whenever desirable.

We advise every Creamery and Cheese Factory to order a year's supply in advance, say three packages to be shipped every six weeks or two months, in order to take advantage of the ten per cent rebate and to be sure not to run out of stock at any time.

Full directions are furnished with every package, and correspondence solicited.

PRICE LIST

LARGE PACKAGE:

Single package, by registered mail, prepaid. . \$2 00
Three packages by express, prepaid, per pkg., 1 75

SMALL PACKAGE

Single package, by registered mail, prepaid. . 75
Three packages by registered mail, prepaid,
per package. 65
Ten per cent rebate if 18 packages taken
in one year by a single consumer.





BUTTER COLORS

HANSEN'S DANISH

PURE ANNATTO COLORING



This is not the cheapest (per gallon) nor the strongest, and it is not claimed for it that it will color salt or other minerals permanently, but it is claimed, and has been demonstrated by its use by many leading dairymen in all parts of the world, that



**IT IS THE PUREST
IT IS ABSOLUTELY HARMLESS
IT IS THE BEST**

And therefore the most economical Butter Color made.

Sold only in original sealed packages put up by the manufacturers.



PRICES

48 one-gallon cans, in cases of 12 or 6 cans, per gallon.....	\$.....	
Cases of 12 one-gallon cans, per gallon.....		
Cases of 6 one-gallon cans, per gallon.....		
Single one-gallon cans, jacketed, per gallon.....		
20-oz. bottles, per bottle.....	\$.....	Per doz. bottles.....
9-oz. " "		" " "
4-oz. " "		" " "
4-oz. " by mail, postage prepaid, per bot.		" " "



Butter Makers and Re-workers of Butter

Handling large quantities and wishing a cheap Coloring of High Quality should use

THE "COLUMBIAN" BUTTER COLOR

Which we guarantee to be the strongest in the market, and in every respect superior to any other, except Chr. Hansen's Danish.

The Columbian Butter Color will not fade on salt. It is always clear as crystal, and considering its strength, **it is the cheapest in the market.**

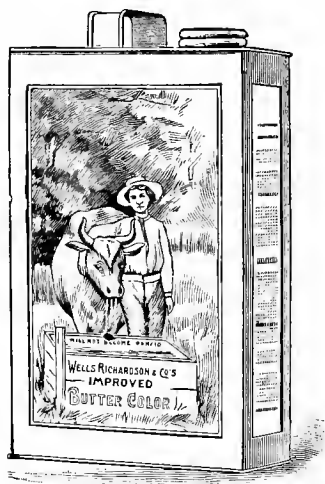
Sold only in original sealed cans.

PRICES

40 one-gallon cans, in cases of 5 or 10 cans, per gallon.....	\$.....
Cases of 10 one-gallon cans, per gallon.....	
Cases of 5 one-gallon cans, per gallon.....	
Single one-gallon cans, jacketed, per gallon.....	
One pint cans, per can.....	



WELLS, RICHARDSON & CO'S IMPROVED BUTTER COLOR



This Color is well known throughout the country. It is used in many of the large creameries and dairies, and gives universal satisfaction. The last drop in the can is as clear as the first. Guaranteed not to fade or color the buttermilk. The highest honors at the World's Fair were awarded to the Wells, Richardson & Co's Improved Butter Color.

READ THIS

DAIRY DEPARTMENT, IOWA AGRICULTURAL COLLEGE.

AMES, IOWA, August 14, 1897.

WELLS, RICHARDSON & CO., Burlington, Vt.

GENTLEMEN:—We have used your Butter Color at the Iowa Dairy School for the past three years, and it has given us the best of satisfaction. We have always found it clear from specks; and butter colored with it has that beautiful **June shade** so much desired.

Our trial shipments of butter to England for the United States Government were colored with it and pronounced perfect in color.

G. L. MCKAY,
State Dairy Inspector.

SIZES

Small bottle, to color 400 lbs.	.....	\$.....
Medium " " 900 "	.....	.....
Large " " 2,000 "	.....	.....
Single gallon	.....	.....
Five gallons, per gallon	.....	.....
Ten " "	.....	.....
Twenty-five gallons, per gallon	.....	.....

For prices see our Monthly Price Current.

CLEANSING SUPPLIES



“IDEAL” CLEANSING POWDER

For purity and strength, our Ideal Cleansing Powder is unequalled. Cheaper than others—because less of it is required. For cleaning and purifying, Cans, Vats, Pumps, Test Bottles and all kinds of Tin and Wood-ware, Pipes, Floors, Drains and other dirty work around creamery, there is nothing on the market that will compare with this powder. It is also invaluable for laundry purposes. Will not discolor wood or give out defective odors. Please bear in mind **that no Cleansing Powder containing Salt Petre** should ever be used in Churns, Vats, on Woodwork or Tinware.

SIZE OF PACKAGES AND PRICES

Barrel of about 225 lbs. per lb., \$.

Kegs of about 75 lbs. “ “

We send this powder on approval, to be returned if not entirely satisfactory.

DIRECTIONS.—Use in the same way as Gold Dust or Savogran and Sal Soda, using about one-third less than Gold Dust and one-fourth less than of Savogran and three-quarter less than Sal Soda. Take a small amount of it home on washday and see the result obtained from using it.

GOLD DUST

FOR CLEANING PURPOSES

Each Box Contains 24—4-lb. Cartons

Price, 5-box lots. per box, \$.

Less than 5-box lots. “ “

SAL SODA

FOR GENERAL CLEANING PURPOSES

PRICES

Per lb.\$.

Kegs about 150 lbs. “ “

HOUSE SAVOGRAN

This is a pure alkali cleansing powder, and a perfect substitute for soap or soap powder and is a good disinfectant.

PRICES

Kegs, 60 to 70 lbs. per lb., \$.

Kegs, large, 120 to 130 lbs. “ “

OZALINE

A fine disinfectant for factories and dairies. Removes every offensive smell at once. Its use in creameries and dairies is of untold advantage, as it kills all germs in the air, gives off oxygen and thus keeps the air pure, and by this means helps to keep butter, milk and cream sweet. Positively odorless and ever active. Contains no carbolic acid nor chloride of lime. In use by hundreds of creameries.

SIZES AND PRICES

10-pound boxes. price, per box, \$.

25 “ “ “ “

50 “ “ “ “

100 “ Kegs. “ “ keg, ...

Also in ½ bbls. and barrels. Discount on quantity.

For Prices see our Monthly Price Current

TUB FASTENERS

"UNIVERSAL"

TIN AND TACK COMBINED



We can recommend to consumers as being far superior to any device known for safe transportation and preservation of the contents of the package.

No lacerating and poisoning the hands.

Receivers of butter in all sections are strongly urging shippers to encourage among creameries and dairymen the use of the Universal Fastener in preference to any other. The Universal is quickly applied and can be easily withdrawn to examine butter, and can be re-used. Remember, the Universal is a time, labor and money-saver to every creamery, butter-maker or shipper.

We are the exclusive Western Agents for these Fasteners.

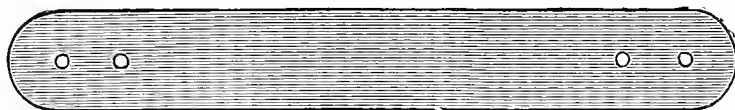
Try the Universal. We guarantee satisfaction. Send for circular and prices. Samples free.

PRICE LIST

Packed 500 in a package.

Per 1,000..... \$....

"COMMON TINS"



1,000 in a package.

Per 1,000..... \$....

" 1,000 in 10,000 lots.....

NAILS AND TACKS



5/8-in. wire nails, per lb..... \$....

10-oz. Swede tacks, per lb.....

For Prices see our Monthly Price Current

TUB FASTENERS

"RIVETED"



PRICES

1,000 lots, per M.....	\$....
5,000 " "	
10,000 " "	

"BAIL BOX"



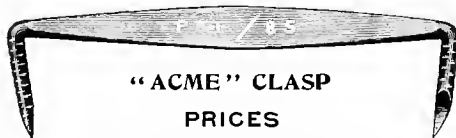
Made similar to the Excelsior, but end not folded.

PRICES

1,000 lots, per M.....	\$....
5,000 " "	
10,000 " "	

"ACME" CLASP

PRICES



	No. to Lb.	Length.	Per Lb. Coppered.	Per Lb. Galvanized.	Per Lb. Solid Tinned.
No. 9.....	150	2½ in.	\$....	\$....	\$....
" 10.....	145	2¾ "			

"DE HAVEN"



USED LARGELY ON CHEESE BOXES

PRICES

Per lb.....\$....	25-lb. boxes.....per lb., \$....
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TOP



BOTTOM

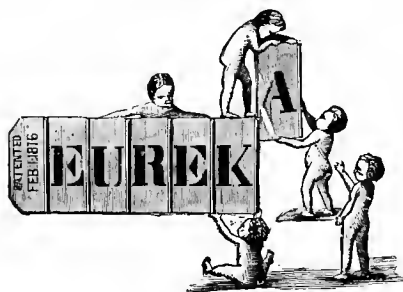
"STAR"

PRICES

Coppered.....per lb. \$....
Tinned....."

For Prices see our Monthly Price Current

STENCILS



LETTERS

Alphabets of 33 pieces, in boxes, as follows: 26 letters of the alphabet, 1 &, 1 beginner, 1 ender, 1 period, 1 apostrophe, 1 comma and 1 blank.

$\frac{1}{2}$ -inch.....	\$0 65
$\frac{3}{4}$ "	70
1 "	80
$1\frac{1}{2}$ "	1 00
2 "	1 40
$2\frac{1}{2}$ "	2 00

FIGURES

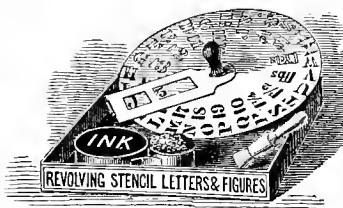
Figures, in sets, as follows: 1, 2, 3, 4, 5, 6, 7, 8, 9, 0; 1 dollar mark, 1 cent mark, 1 figure period, 1 beginner, 1 ender.

$\frac{1}{2}$ -inch.....	\$0 25
$\frac{3}{8}$ "	30
1 "	35
$1\frac{1}{2}$ "	45
2 "	65
$2\frac{1}{2}$ "	95

REVOLVING STENCIL LETTERS AND FIGURES

Alphabet and Figures, Combined

$\frac{1}{4}$ -inch.....	\$1 25
$\frac{3}{8}$ "	1 25
$\frac{1}{2}$ "	1 25
$\frac{3}{4}$ "	1 50
$\frac{5}{8}$ "	1 50
$\frac{7}{8}$ "	1 75
1 "	2 00
$1\frac{1}{4}$ "	2 50
$1\frac{1}{2}$ "	no figures. 2 00



Figures Only

$\frac{1}{4}$ -inch.....	\$0 60
$\frac{3}{8}$ "	60
$\frac{1}{2}$ "	70
$\frac{5}{8}$ "	70
$\frac{3}{4}$ "	80
$\frac{7}{8}$ "	80
1 "	80
$1\frac{1}{4}$ "	1 00
$1\frac{1}{2}$ "	1 25

MONTHS AND DATES

Same pattern as revolving stencil letters and figures.

Price.....	\$1 75
------------	--------

CREAMERY STENCIL

BRASS.

We make a specialty of getting out stencils of all kinds, and cut any design desired.

Stencils like accompanying cut, and with wording similar,

PRICES AS FOLLOWS :

Small, 7x10 inches.....	Each, \$1 50
Large, 10x14 "	" 2 00

Other styles, per letter, 6c.



STENCIL PASTE.



One of our specialties is stencil paste, or ink, which we manufacture in three colors—black, blue and red. For stencil work you will find this very desirable, as it will not rub off. It is used largely by most creamery men, and gives the best satisfaction. We also furnish stencil

brushes at prices quoted on opposite page.

PRICES.

Small box, black, each.....	\$0 20
“ “ “ per dozen	1 75
Large “ “ each.....	50
“ “ “ per dozen	5 50
Small “ blue, each.....	30
“ “ “ per dozen	3 00

Other colors furnished on order.

Marking Pots.....each, 20c.

PAINT PENCILS.



This will be found very useful for marking boxes, etc. It is economical and convenient.

Price, each.....\$0 05 Per dozen.....\$0 50

LUMBER CRAYONS.



For marking weights, each....\$0 10 Per dozen.....\$1 00

FACTORY BROOM.



Iron bound, fastened by strong wire.

Price, each.....\$0 40

MOPS.

WOOD HEAD.

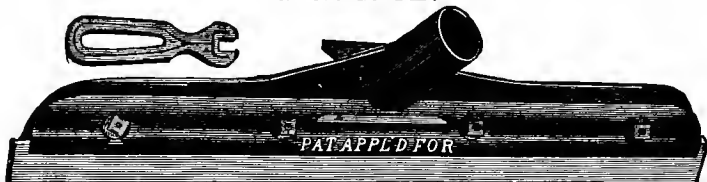


This head is made of hard wood, with pure rubber, and is preferred by many, and has the advantage of being cheap.

PRICES.

12 inch	each, \$0 25	14 inch	each, \$0 30
16 "	" 40	Extra Rubbers, any size..	per lb., 80

IRON HEAD.

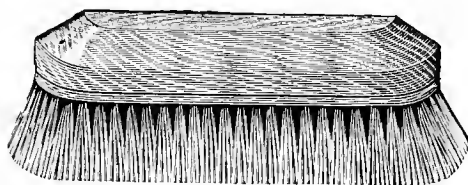


This mop is almost indispensable to any creamery or cheese factory, as a wet floor can be cleaned and dried with it very rapidly. The iron head holds a rubber same length as mop—made of pure gum—which, when worn out, can be removed and replaced by a new one.

PRICES.

14 inch	each, \$0 65
17 "	" 1 00
Extra Rubbers	per lb., 80

BRUSHES.



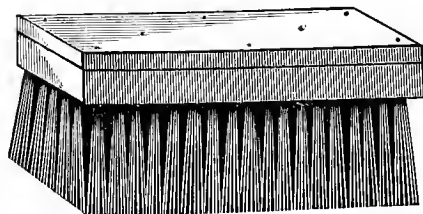
HALF ROUND FLOOR.

A very serviceable brush for all purposes.

Each.....	\$0 40
Per dozen.....	4 00

STEEL FLOOR AND SHELF.

Each.....	\$ 1 25
Per dozen.....	12 00



A. B. C.

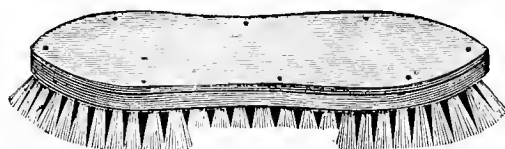
This is the best brush on the market for dairy purposes.

6 inches.....	each, \$0 25
6 "	doz., 2 50
4 "	each, 20
4 "	doz., 2 25



BRUSHES

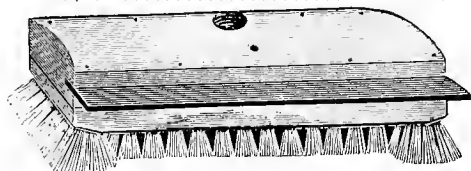
We can furnish anything in the line of first-class brushes. Below we give a list of our regular stock sizes:



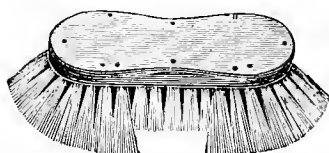
12-inch

PRICE

6-in. Rice root, per doz.....	.....
Each .....	.....
4 " Palmetto.....	.....
Each .....	.....



PRICE	
12-in. rice root, per doz.....	.....
Each .....	.....
11 " rice root, per doz.....	.....
Each .....	.....
12 " Tampico, white, per doz. ....	.....
Each .....	.....



6-inch

FLOOR BRUSH

This is a mop and brush combined.

PRICE

Per doz.....	.....
Each.....	.....

PALMETTO BRUSH

No. 1 "Duck," 6x2½ in., each, .....	.....
" 4 "Goose," 7½x3 " " .....	.....
" 50 "Alligator," 9x3 in. " .....	.....



JERSEY CAN BRUSH

BEST ON THE MARKET

PRICE

Per doz.....	.....
Each.....	.....



COMPOSITE TEST JAR BRUSH

GREY, WOOD HANDLE

Per doz.....	.....
Each .....	.....



BABCOCK TEST BOTTLE BRUSH



Per doz.....	.....
Each.....	.....

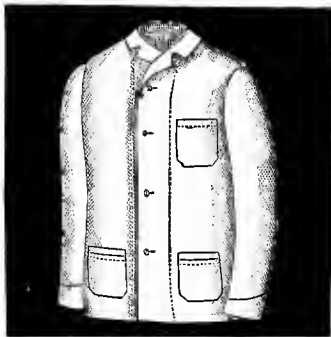
STENCIL BRUSH

Small	per doz., ...	each, ...
Large	"	"



WHITE DUCK SUITS

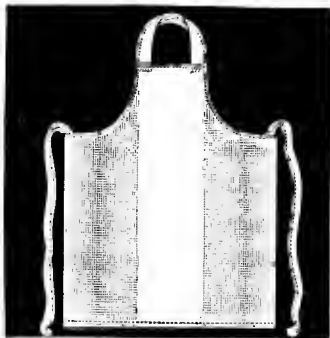
FOR BUTTER AND CHEESEMAKERS

**COAT****PANTS**

We have received so many calls for these goods during the past year that we have added them to our line. Like our other goods, they are first-class in every particular. They are made from the best Pullman White Duck. Nothing has a better effect on the patron than a clean factory and a clean maker.

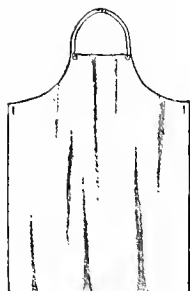
In ordering give chest, waist and inside leg measures.

PRICES

CAP, 25c**COAT, \$1.25****PANTS, \$1.50****APRON, 50c****FULL SUIT, \$3.25****TWO SUITS FOR \$6.00****APRON****CAP**

APRONS

"STANDARD"



Standard Sheeting Aprons are made of strong sheeting, lined throughout, thoroughly oiled and durably made, are finished with cloth straps to suspend from neck. Are worn by dairymen and others desiring a waterproof apron that is convenient and light.

Length, 41 to 45 inches; width, 36 inches.

In yellow or black.

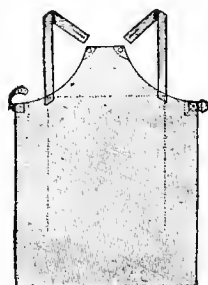
Price.....\$0 75

"IDEAL"

Ideal Canvas Aprons are made of special woven heavy duck, lined with heavy sheeting, thoroughly oiled and durably made; are finished with cloth shoulder straps, and leather strap and buckle to fasten around waist.

Length, 52 inches; width, 40 inches.

In yellow or black. Price.....\$1 25



FISH BRAND



These aprons are made from canvas and are heavily oiled. They have been thoroughly tried in and about creameries and cheese factories and give universal satisfaction.

Price, No. 1, long; No. 2, medium; No. 3, short, each\$0 85

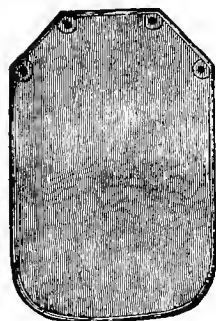
RUBBER

This represents a large rubber apron, much used by butter and cheese-makers to protect their clothing while at work. With fair usage, one will last a long time. Just what is needed when making composite tests, as acid will not affect the rubber.

Light Black.....each, \$1 50

Heavy Black....." 1 75

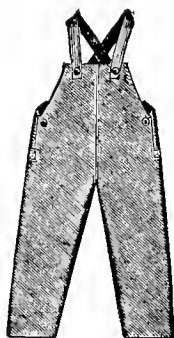
White....." 2 25



WHITE DUCK

Generally used with butter-makers' suits. Each.....\$0 50

OILED APRON-PANTS



Challenge Oiled Apron-Pants are manufactured of fine, strong cloth specially woven from carefully selected, long, staple cotton, heavily and thoroughly oiled and very durably made, producing a popular, reliable oiled pants. Have patent eyelet fastened zinc buttons, with smooth backs, preventing the catching or tearing of clothing, and will not rust or corrode.

Size 1—	waist	40	leg	31
“ 2	“	38	“	30
“ 3	“	36	“	29

Made in yellow.....	\$1 25
Made in black.....	1 50

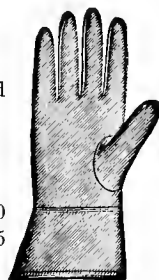
RUBBER GLOVES

Net-Lined, best on the market. For use in handling acid and making composite tests.

ONLY ONE SIZE

PRICE

Light, Short, each, \$1 50, with Gauntlet.....	\$2 00
Heavy “ “ 1 75, “ “	2 25



FINGER COTS

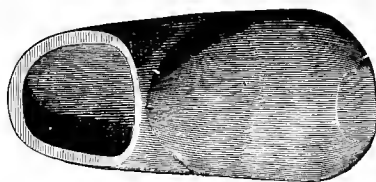
Assorted Sizes

Something that should be in every Factory



Light, per doz.....	\$ 1 00
Heavy “	1 50

BADGER WOODEN SHOES



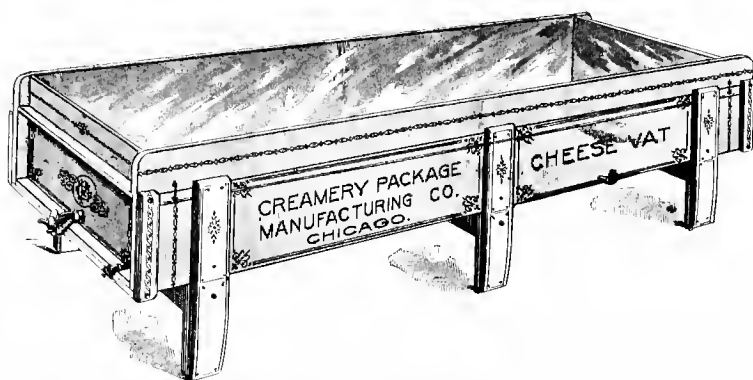
Made of second growth basswood, hand made, kiln dried and smoked. You never get cold feet in them. Just what every farmer wants. We have them in large sizes.

Price, per pair (common).....	\$ 75
“ “ (leather top, lined).....	1 75

In ordering Pants, Gloves and Wooden Shoes always state size

CHEESE FACTORY VATS

WITH STEAM PIPES



Our Cheese Vats are constructed throughout in the most substantial manner. The wood vats are made of pine, which experience has shown to be the best wood for this purpose, and the best and heaviest tin plate is used for the tin vats. Our vats are made with channel bottoms sloping from the sides to the center, the slope increasing toward the outlet. By this arrangement it is not necessary to tilt the vat to draw off the entire contents. The tin vats are painted on the outside to prevent rusting.

The rail to which the tin vat is attached does not project beyond the body of the vat. The sides of the vats are kept from spreading by truss rods, and Perfection Gates are furnished for outlets.

Our Steam Mufflers are attached to the steam pipes, which makes the heating-up process noiseless.

We call special attention to the greatly increased durability of vats with copper bottoms or full copper linings.

SIZES AND PRICES

	Tin Lined.	Copper Bottom.	Copper Lined.		Tin Lined.	Copper Bottom.	Copper Lined.
100-Gallon Vat.	\$32 50	\$52 55	\$62 50	600-Gallon Vat.	\$ 60 00	\$ 85 00	\$105 00
200 " "	40 00	50 00	65 00	700 " "	70 00	88 00	115 00
300 " "	45 00	60 00	70 00	800 " "	80 00	95 00	125 00
400 " "	50 00	70 00	85 00	1,000 " "	100 00	105 00	135 00
500 " "	55 00	80 00	100 00			115 00	145 00

Special sizes made to order.

FOR DIMENSIONS SEE PAGE 101.

PRICES OF EXTRA TIN LININGS WITH RAILS

100 Gallons.....	\$14 00	600 Gallons.....	\$31 00
200 "	16 00	700 "	34 00
300 "	18 00	800 "	37 00
400 "	24 00	1,000 "	44 00
500 "	27 00		

TIN PLATES FOR REPAIRING VAT BOTTOMS, ETC.

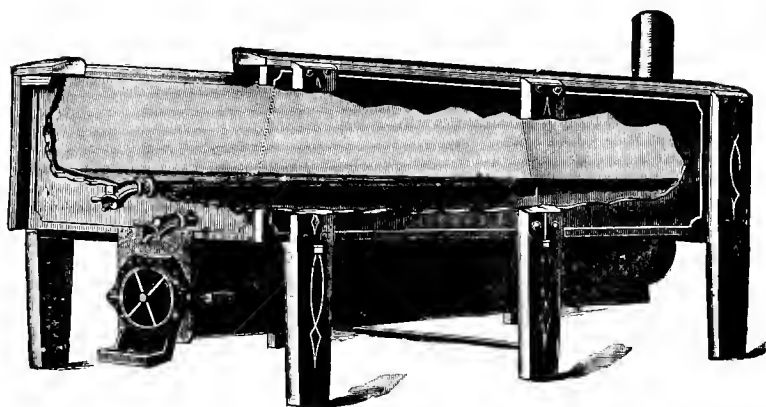
Thickness.	Size.	Weight per Sheet.	Per Lb.
IXXXXXX	41x58 in.	About 20 lbs.	\$.....
IXXXX	36x84 "	" 20 "	".....
IXXXX	30x72 "	" 14 "	".....
IXXXX	20x60 "	" 8 "	".....

For Prices on Tin Plates see our Monthly Price Current.

SELF-HEATING CHEESE VAT

WITH CHANNEL BOTTOM

(PATENTED)



The self-heating cheese vat has been in use for more than fifty years, and during this time has given general satisfaction.

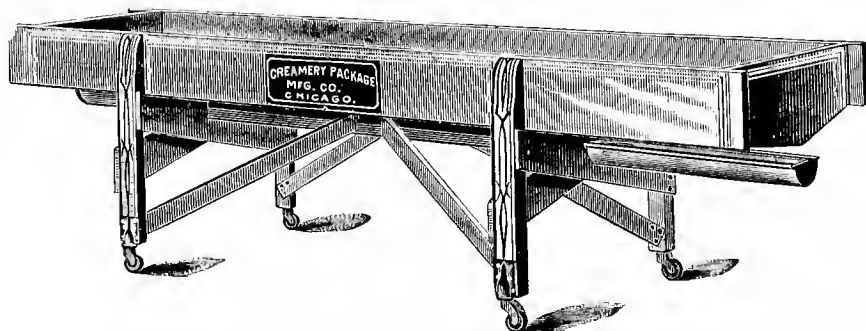
The temperature of the vat cannot be controlled as readily as it can by steam, and there is more dust and ashes from the fire-box than from a boiler, yet where room is limited, and economy must be practiced, the self-heating vat, with channel bottom, will give good satisfaction.

The importance of the channel bottom in cheese vats—to facilitate drawing off the whey by the use of the whey strainer, with tube especially for it—can hardly be over-estimated. With good cheese-making implements there should be no excuse for poor cheese, when good milk is delivered at the factory.

Sizes and Prices of Self-Heating Vats with Channel Bottom.

75 gallon Vat	.....	\$ 35 00
100 " "	.....	40 00
150 " "	.....	50 00
200 " "	.....	60 00
300 " "	.....	70 00
400 " "	.....	80 00
500 " "	.....	90 00
600 " "	.....	100 00

CURD SINKS



With Castors and Whey Spout Complete

	Tin Lined	Copper Lined
10 feet long x 3 ft. 2 in. x 9 in.....	\$23 00	\$30 00
12 " " x 3 ft. 2 in. x 9 in.....	25 00	32 00
14 " " x 3 ft. 2 in. x 9 in.....	30 00	36 00

PERFORATED TIN

For repairing Curd Sinks, Strainers, etc., furnished in I. C. thickness and in 10x14 in. and 14x20 in. sheets.

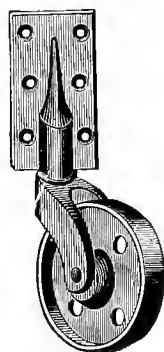
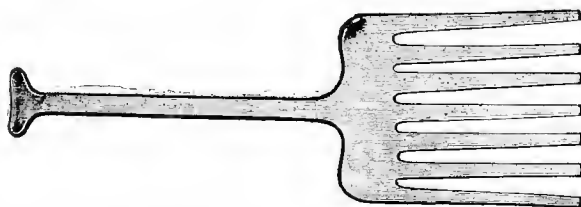
	1 Extra Fine	2 Fine	3 Medium	4 Coarse	5 Extra Coarse
No. Holes per in.	18	15	12	10	8
10x14 Sheets per doz.					
14x20 Sheets per doz.					

MARKET PRICE

CURD SINK CASTORS

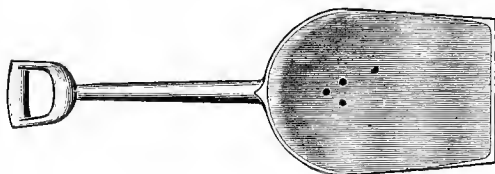
3-inch wheels, per set of 4.....	\$1 75
5 " " " " 4.....	2 25

CURD FORKS



This is designed as a curd fork for handling curd.
Every cheese-maker will see the value of it at once.
Price.....each, \$0 75

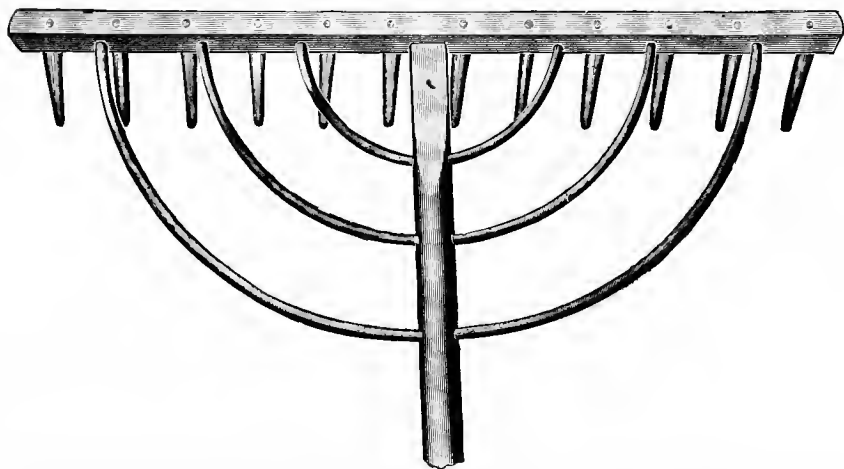
CURD SCOOPS



This scoop is made from wood
and is strong and durable.

Short handle	each, \$0 60
Long "	" 75

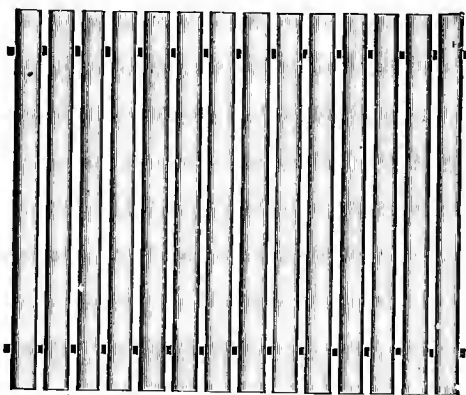
THE ACME CURD RAKE.



We have this rake made especially for our own trade. It is strong and substantial, having three bows. It is not a common hay rake with the handle cut off, but made for use in a cheese vat.

Price\$0 50

CURTIS' IMPROVED CURD RACK.



Size 41 inches wide by 30 inches long.

This is one of the very important implements used in the improved method of making cheese.

It is placed in one end of the bottom of the vat, after the whey is drawn, covered with a strainer cloth and the curd placed thereon, where it is kept warm for the acid to develop in the curd. Two or three may be used, according to the size of the vat and the amount of curd.

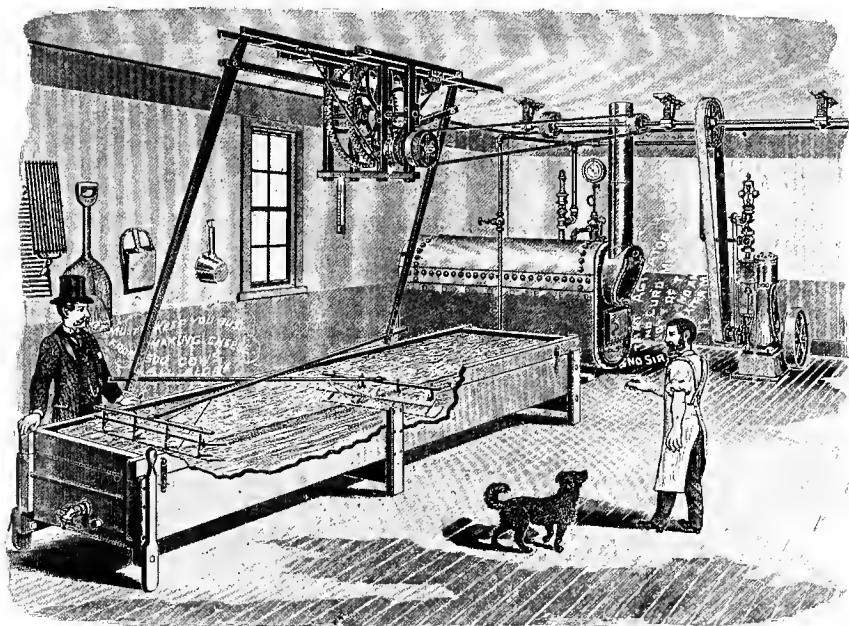
It is used at the Experimental Station in giving instructions to cheese-makers and is pronounced faultless.

It is made in such a manner that it can be kept scrupulously clean, one of the important things with all cheese-making implements.

Price.....\$2 00

POHL'S "AUTOMATIC" CURD AGITATOR

PATENTS PENDING



IS DESIGNED FOR STIRRING CURD DURING THE TIME IT IS
BEING COOKED

THIS MACHINE

has been on the market for five years and has proven to be all we claim for it. By its use the cost for labor can be greatly reduced in the cheese factory; the yield will be increased and the cheese will be of a superior quality.

It has been endorsed by all the New York State and Michigan Cheese experts as being a machine of great practical value and should be in every well-established cheese factory.

POHL'S "AUTOMATIC" CURD AGITATOR

REPORT OF THE AVA, N. Y., CHEESE FACTORY

Below we give a report of the Ava, N. Y., Cheese Factory for the year 1894, when Pohl's Automatic Curd Agitators were used, as compared with reports of former years, when the curd was stirred by hand:

The average number of lbs. of milk required per lb. of cheese in 1884, was .1015; in 1893, .1074; from 1887 to 1893, .1060; average gain per lb. in 1894 over 1893, .59 lbs. of milk; average, 1894 over 1887 to 1893, .45 lbs. of milk.

During the year of 1894 numerous tests were made at the Ava factory, in which each patron's milk was equally divided, one half of it run in one vat and the other half was run into the other vat. This insured an equal quality of milk in each vat. The one vat was worked with the Agitator and the other by hand, making the same quality of cheese in each vat. On weighing the cheese the next morning those made with the Agitator each weighed $1\frac{1}{2}$ pounds more than those made by hand, and in the curing those made with the machine shrank less than those made by hand. The tests were repeated over and over again with like results.

We claim for this Agitator superiority over hand labor for the following reasons:

First.—The curd is kept constantly in motion from one end of the vat to the other, allowing it to cook more evenly than it possibly could do when stirred by hand.

Second.—By this process of gentle and constant stirring the curd is not crushed or squeezed as is done when stirred by hand, thereby securing an increased yield of cheese, and of a superior quality.

Third.—The saving of labor whereby one man can perform the work of two or three will not be too much to claim for the **Automatic Curd Agitator**, which once set up in the factory is ever ready, always willing, never grows tired, nor asks for a holiday nor goes on a strike.

Fourth.—That without any further expense the machinery which runs the Agitator also runs the Curd Mill.

Last but not least, many a cheesemaker has been compelled to abandon the business of cheesemaking on account of ill health brought on by inhaling steam, gas, etc., while bending over the steaming vat, stirring the curd during the cooking process. All difficulties of this kind will be averted; all of the above named desirable results will be secured by using the **Automatic Curd Agitator**.

TESTIMONIALS

Gentlemen:—For the past month I have used a Pohl Automatic Curd Agitator, in one of my vats, and handled the other curd with a hand rake. In this daily comparison the Agitator is always ahead. It produces a clearer whey, a more evenly cooked curd and a better yield of cheese than I am able to do with my hands, or the hand rake.

Before putting up the Agitator, I had doubts about its ability to keep the curd from matting in the corners of the vat. Those doubts are dispelled. The shape of the rakes is such that they produce a current away from the ends of the vat. The curd is kept floating in the whey—the particles free and distinct.

After cutting the curd I start the Agitator, and have nothing more to do with it until the curd is cooked.

The enclosed draft, to pay for another Agitator, shows how much I appreciate their assistance. With one in each vat, I can handle my 6,000 lbs. of milk alone.

The exhaust from the engine is connected with the steam pipes, so that the same steam runs the stirrer and cooks the curd. In that way but little more fuel is used than would be required if hand rakes were employed, and the cheesemaker marched around his vat 400 or 500 times a day for eight months in the year.

Yours truly,

E. A. HAVEN,
Ex-State Dairy Inspector.

MANNSVILLE, N. Y., Jefferson County, July 4, 1894.

Gentlemen:—I have your Curd Agitator in Operation, and I must say it is just perfection. It keeps the curd perfectly loosened, no matting down anywhere in the vat. The Agitator does all the work after the curd is cut, and does it better than any man can do it, for it never stops; and when once in motion the curd is continually in motion and never stops until the machine stops. I cannot give the Agitator too much credit, for it does away with the most tedious work in a factory and does it so nicely anyone once using this machine would never be without it. I would not part with mine at any price if I could not get another. Besides it does away with the expense of one man in my factory. Please send my other machines as soon as possible.

Cheesemaker for New York State at the World's Columbian Exposition,
Chicago, Ill., in the great competition tests between the breeds.

Respectfully yours,
E. L. STONE.

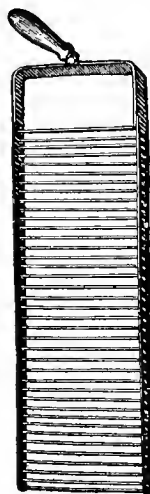
SHIPPING WEIGHT, 200 LBS.

PRICE, COMPLETE, READY TO BELT, \$60.00

IMPROVED CURD KNIVES

TINNED STEEL

These knives have no wood about them except the handle. The blades are of steel, ground to an edge, and tinned over to prevent rusting.



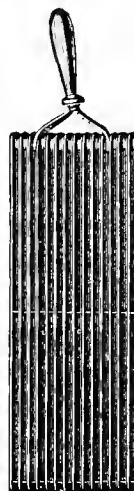
Horizontal.

HORIZONTAL

4 in. wide, 20 in. long.....	\$4 00
6 " " 20 "	5 00
8 " " 20 "	6 25
10 " " 20 "	7 50
12 " " 20 "	9 00

PERPENDICULAR

4 blade knives, 20 in. long.....	\$2 50
6 " " 20 "	3 00
8 " " 20 "	3 50
10 " " 20 "	3 75
12 " " 20 "	4 50
13 " " 20 "	4 85
14 " " 20 "	5 00
15 " " 20 "	5 50
17 " " 20 "	5 80
20 " " 20 "	6 25
30 " " 20 "	11 00



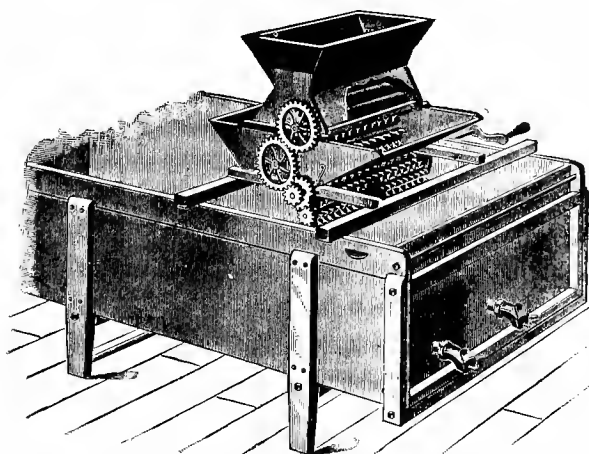
Perpendicular.

TINNED CHEESE KNIVES



Each.....\$1 00

CURD MILLS "POHL" SELF-SALTING



For description and prices see next page.

CURD MILLS—POHL SELF-SALTING—*Continued*

The many advantages this mill has over any other curd mill in use may be briefly stated as follows:

FIRST.—The ease with which it can be operated, either by hand or power. It grinds and salts at one operation.

SECOND.—That it thoroughly tears and pulverizes the curd instead of cutting or squeezing it.

THIRD.—That the salter attachment is so arranged that the salt can be evenly distributed through all parts of the curd in exact proportion at the same time the curd is being ground. It salts every grain of curd perfectly even.

FOURTH.—That it will not clog up and cut some of the curd fine and leave some coarse and stringy.

FIFTH.—The hoop can be placed under the mill to receive the curd as it passes through the mill, thereby saving any further trouble than to place the same immediately in the press. It will grind eight or ten cheeses in five minutes.

PRICE

Power Mill, complete, with salting attachment.....	26 00
“ “ “ without “ “	24 00
Shipping weight, 75 lbs.	

POHL CURD MILL EXTRAS

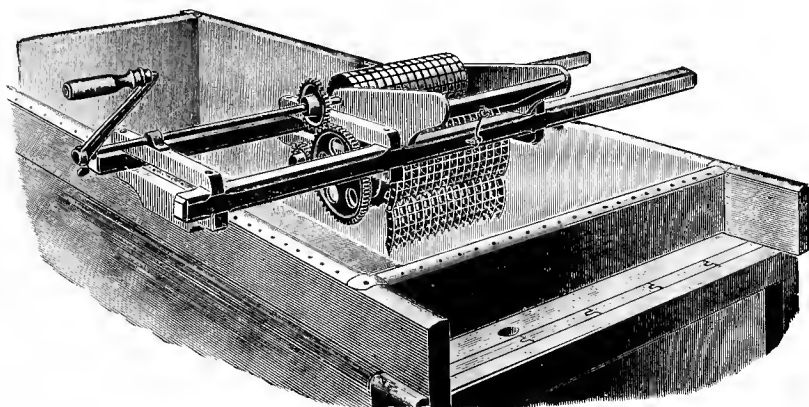
PRICE LIST OF EXTRAS

No. 1.	Main iron roll	\$6 00
“ 2.	Large wooden roll.....	4 00
“ 3.	Small “	2 00
“ 4.	Crank.....	50
“ 5.	Large gear.....	75
“ 6.	Double gear.....	75
“ 7.	Pinion for small wooden roller.....	50
“ 8.	Hangers, brass lined, 2 pieces to set, per set.....	3 00
“ 10.	Boxes to hold large wooden roll on frame, per pair.....	50
“ 11.	Box to steady crank shaft.....	25

FOR SALTER

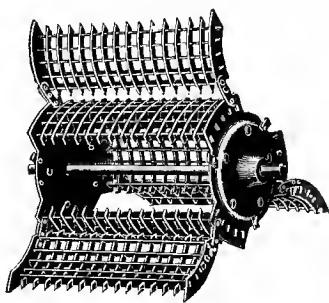
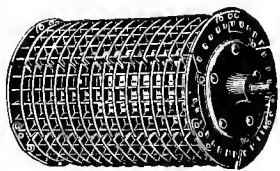
No. 5.	Large gear to connect with gear on mill.....	\$0 75
“ 9.	Large spur gear.....	50
“ 12.	Small “	50
“ 13.	Block to carry large roller.....	25
“ 14.	Thumb screw for adjusting rolls.....	15
“ 15.	Long box, right and left hand, per set of 2.....	75
	Frame for mill (not shown).....	2 00
	Hopper “ “	1 50
	Hopper for salter “	1 50
	Frame “	1 00

KASPER ROTARY CURD MILL



The demand for a large capacity Curd Mill, for cutting curd into cubes, has induced the inventor to bring out the Kasper Mill. In the construction the mill consists of a rotary cylinder made of knives in the form of cubes. Against these knives a wooden roll revolves, with indentations to fit the knives of the cylinder; the curd being forced into the hopper is forced through the openings in the cylinder by the wooden roll.

The cylinder is made in three sections, hung on hinges and, as it revolves, each section, as it comes to the lower part of the cylinder, opens and allows the curd to drop into the vat, the section closing again as the cylinder revolves, one of the three sections being always open.

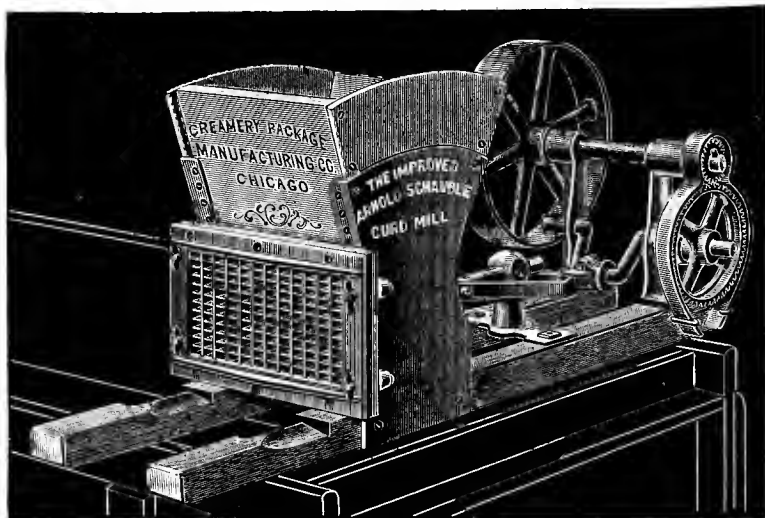


Two views of the cutting cylinder are shown herewith, the first closed, the second open.

It is estimated that the curd from 7,000 lbs. of milk can be cut in from seven to ten minutes. The mill operates easily, being light running and adjustable to either hand or belt power. Simplicity of construction, durability, and ease of cleaning are some of its principal features. All parts being galvanized, or tinned, prevents rusting. Weight of the machine complete is about 38 pounds.

List Price.....\$25 00

SCHAUBLE IMPROVED POWER CURD MILL



The Schauble Improved Patent Power Curd Mill is fast coming into favor and is destined to lead all other makes.

It is light-running, compact and durable, and where once introduced, more are sure to follow.

The knives are made of tinned steel blades set vertically, which leaves the curd in clear cut cubes; giving quick drainage, even salting, and a clear gain in the saving of the fats in the press and a material gain in the yield of the cheese.

DESCRIPTION AND PRICES OF IMPROVED MILL

Revolution of driving pulley, 140 to 150 per minute. Diameter of driving pulley, 14 inches. Face of driving pulley, 3 inches. Total shipping weight, 162 lbs.

Price complete.....\$25 00

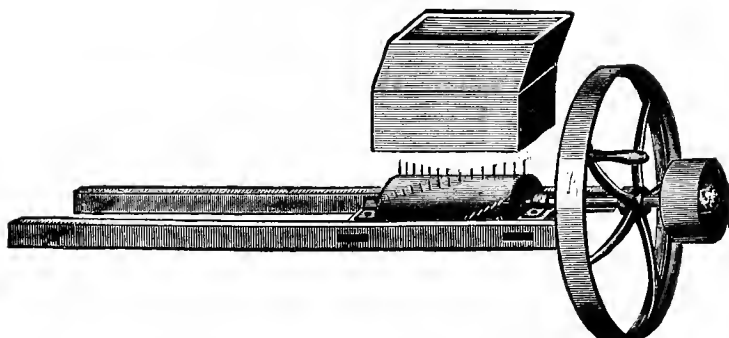
Sent to responsible parties on one week's trial.

PRICE LIST OF EXTRAS FOR IMPROVED MACHINE

Crank Shaft.....	\$2 00	Two Iron Side Pieces for Hopper,	
Upper Shaft.....	1 00	“right and left,” each, \$1 50 ..	\$3 00
Spur Pinion.....	75	Curd Knife with iron frame.....	5 50
Large Gear.....	1 50	“ “ without “	5 00
14-inch Pulley.....	1 75	Iron Frame for Curd Knife.....	75
Two Main Boxes “right and left,”		Casting End of Plunger Shaft	60
each, \$1 50.....	3 00	Hopper wood-work	1 50
Crank Box Complete.....	1 75	Two Wooden Cross Pieces, “right	
Two Boxes for Plunger Shaft, each,		and left,” each, 50 cents	1 00
75 cents.....	1 50		

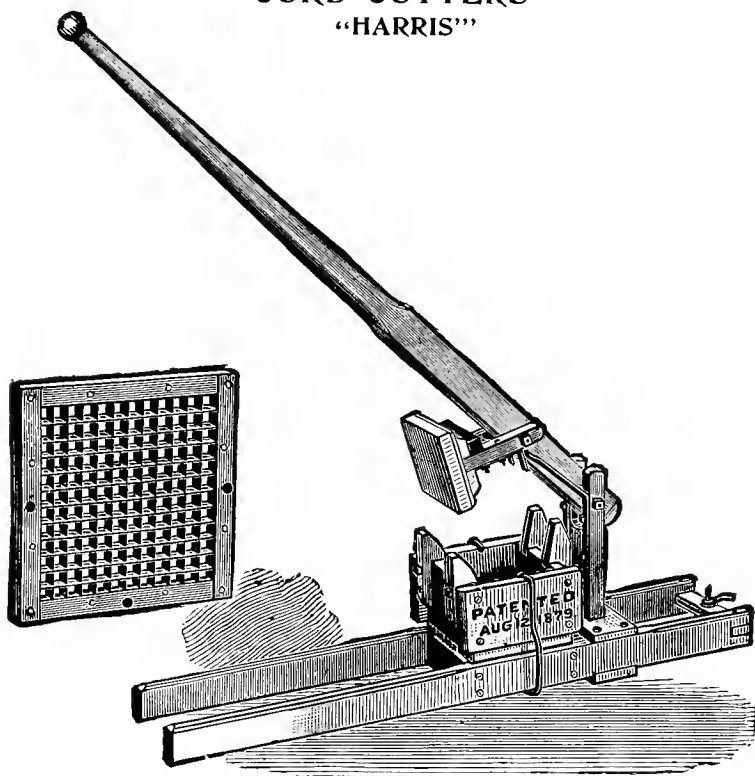
PRICE LIST OF EXTRAS FOR “OLD STYLE” MACHINE

Main Gear Frame.....	\$5 00	Large Spur Gear.....	\$2 00
Eccentric Arm.....	50	Eccentric Pin.....	65
Small Spur Gear Pinion.....	1 00	Sliding Follower.....	1 75
Iron Plate on Follower.....	30	Curd Grate	5 00
Side Guide.....	50	Curd Grate, Hopper attached.....	5 50
Hopper.....	1 00	Two Wooden Cross Pieces, “right	
Eccentric Face Plate.....	1 00	and left,” each, 50 cents	1 00

CURD MILLS**"ELGIN"**

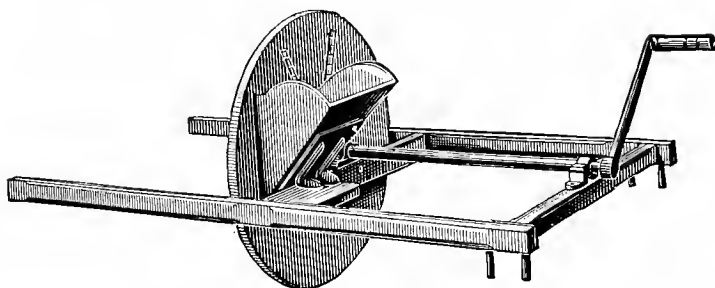
This is a very popular mill in the Elgin district.

Diameter of pulley.....	7 inches; face, 3 inches.
Speed.....	175 to 225 per minute to suit operator.
Weight.....	85 lbs.
Price, each.....	\$16 00

CURD CUTTERS**"HARRIS"**

Price.....	\$15 00
Extra knives.....	net, per set, 3 00

MACPHERSON CURD MILL.



With sharp cutting sections.

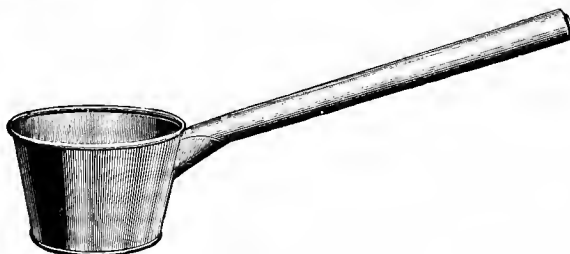
Price\$23 00



SHORT HANDLE DIPPERS.

One gallon, each..... \$0 50

LONG HANDLE DIPPERS.



Each.....\$0 60

Our dippers are made from the very best of heavy tin.

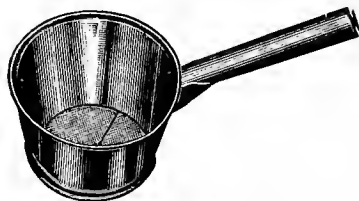
CURD SCOOP.



Made of heavy tin. The edges are wired and carefully soldered, which makes a strong scoop.

Price, Light\$0 50
 " Heavy..... 65

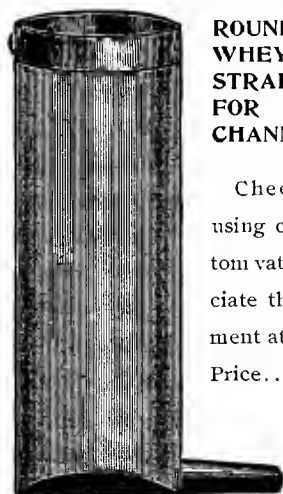
STRAINER DIPPERS.



This dipper has a heavy rim on bottom to protect strainer.

Each.....\$0 75

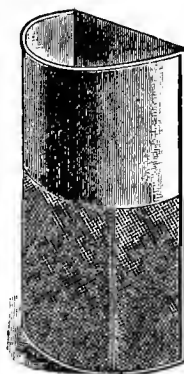
CHEESE FACTORY TINWARE



**ROUND
WHEY
STRAINER
FOR
CHANNEL VAT**

Cheese-makers using channel bottom vats will appreciate this improvement at a glance.

Price.....\$1 10



**HALF ROUND
WHEY
STRAINER**

For either flat or channel bottom vats.

PRICE

Without Spout\$0 85
With spout... 1 00

State whether for flat or channel bottom vat.

SIPHONS

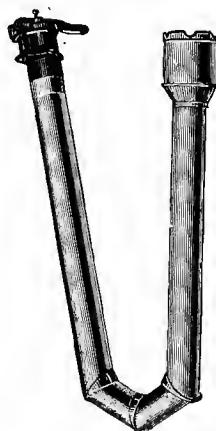
PLAIN

Used for removing milk from one vat into another.

Price.....each, \$0 85



WITH GATE AND VALVE



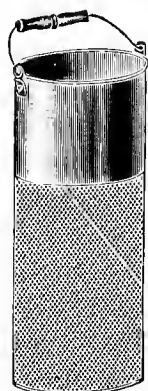
This siphon, with gate and valve, will be found very serviceable where a siphon is used. It is much better than the old kind, and may be ordered with the plain strainer.

Price\$1 75

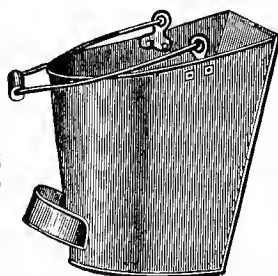
WHEY STRAINER

This illustrates the oldest style of whey strainer; every cheese-maker knows just what they are.

Without spout..... \$0 85
With spout..... 1 00



FLAT SIDE CURD PAIL



Best four-cross charcoal, tin, price:

Light....\$1 25
Heavy.... 1 50

Double the lists to obtain the price on above goods furnished in tinned copper.

MILK CANS

"TEETS" OR "STURGIS" PATTERN

MADE FROM STEEL, HEAVILY TINNED

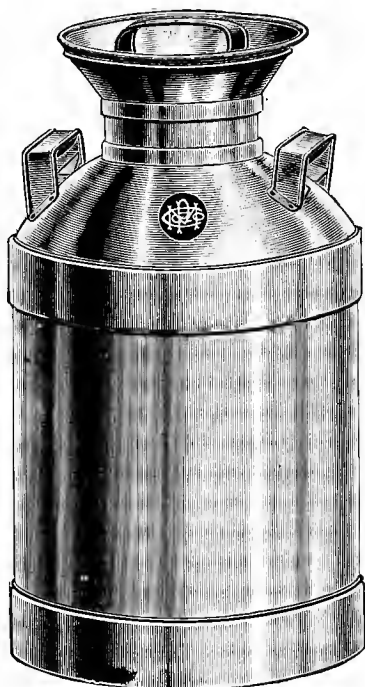
Set of stock consists of full set of trimmings
and cylinder.

CANS NOT MADE UP

5-gallon	.....	per set \$	....
8 "	.....	"	....
10 "	.....	"	....

CANS MADE UP

5-gallon	.....	each \$	....
8 "	.....	"	....
10 "	.....	"	....



TEETS OR STURGIS

"IOWA" OR "DUBUQUE" PATTERN

MADE OF STEEL, HEAVILY TINNED

All Iowa or Dubuque pattern railroad cans
of our manufacture are furnished with pat-
ent improved protected can breasts without
extra charge.

Set of stock consists of full set of trim-
mings and cylinder.

CANS NOT MADE UP

5-gallon	.....	per set, \$	....
8 "	.....	"	....
10 "	.....	"	....
With Bossed Handles, extra..	.....	"	....

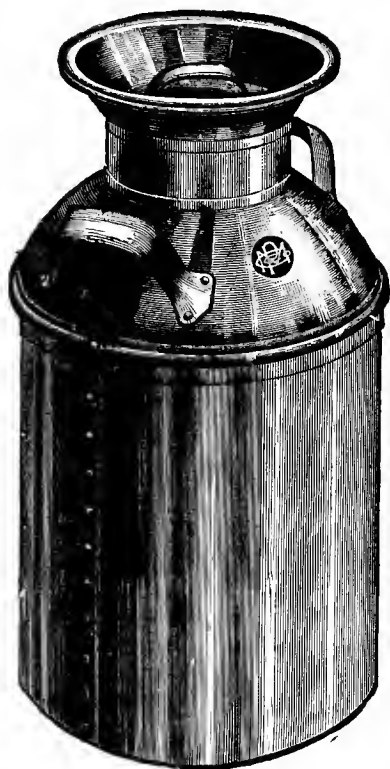
CANS MADE UP

5-gallon	.....	each, \$	....
8 "	.....	"	....
10 "	.....	"	....



IOWA OR DUBUQUE

MILK CANS



ELGIN

“CHICAGO” PATTERN

Made of steel, heavily tinned.

All Chicago pattern railroad cans of our manufacture are furnished with patent improved protected can breasts, without extra charge.

Set of stock consists of full set of trimmings and cylinder.

CANS NOT MADE UP

5-gallon.....	per set, \$....
8 “	“
10 “	“

CANS MADE UP

5-gallon.....	each, \$....
8 “	“
10 “	“

“ELGIN” PATTERN

Made of steel, heavily tinned.

All Elgin Pattern railroad cans of our manufacture are furnished with patent improved protected can breasts, without extra charge.

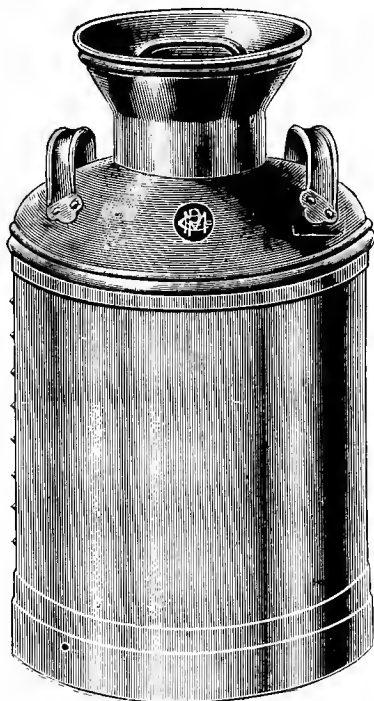
Set of stock consists of full set of trimmings and cylinder.

CANS NOT MADE UP

8-gallon.....	per set, \$....
10 “	“
With bossed handles and galvanized bottom hoop, extra.....	per set, ...

CANS MADE UP

8-gallon.....	each, \$....
10 “	“



CHICAGO



NEW YORK

MILK CANS

NEW YORK PATTERN

These Cans are strong and durable. Seams well riveted and soldered smooth. Free from cracks or crevices. First-class cans in every particular.

5 gallons.....	each, ...	
7½ "	"	
10 "	"	
12½ "	"	

MILK CAN, LETTERS, LINKS AND LOCKS

LETTERS AND FIGURES TINNED ON BACK



LETTERS

Copper, 1¾-inch, per 100.....	\$1 00
Brass, 1¾-inch, per 100.....	1 20



LINKS



LOCKS

Price, per doz., \$0 60	Price, each...\$0 50
Tinned washers for link hole, per pound.....	12

SHIPPING CAN JACKETS

These Jackets are made from ¾ inch hair felt. The felt is lined and covered with heavy canvas; the buckles and straps are of the strongest quality, and in all, the Jacket is durable and efficient.

SIZES AND PRICES OF SHIPPING JACKETS

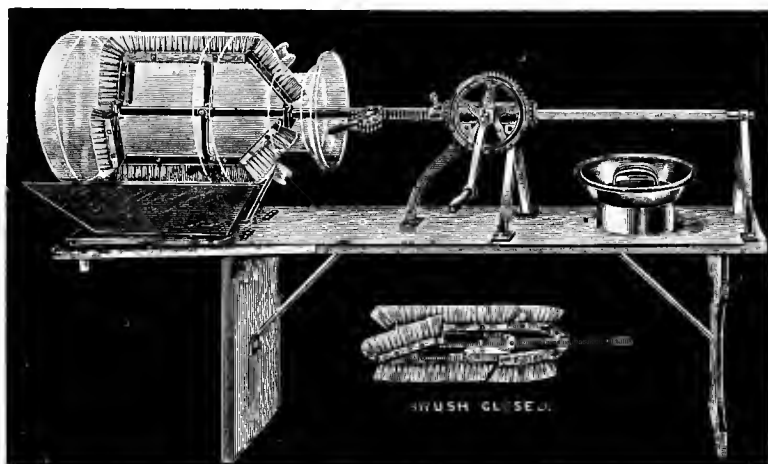
For the New York, St. Louis, Chicago, Elgin, Dundee, Teets and Dubuque Cans—

20-qt. Size ¾ in. Felt..each, \$2 75	Per dozen..\$31 00
32 " " ¾ " " " " 3 00	" " " 34 00
40-qt. Size ¾ in. Felt..each, same price as 32-qt.	

Prices on Jackets made from 1-inch and ½-inch Felt given on application.



"RUST" MILK CAN CLEANER



With adjustable brushes, which can be set out after they have been used some time, and still answer the same purpose as new ones.

Will save more time and money than any other machine used by the farmer.

A machine that is used every day in the year.

The engraving shows the Cleaner while the brushes are spread inside a milk can, and it can readily be seen that the entire inner surface of the can is washed by a few revolutions of the brushes. A man can wash sixty to seventy cans an hour with the machine. The Cleaner is made of steel, malleable iron and cast iron, and is bolted to a strong bench; brushes are made of best Tampico bristles. Any farmer having three or more cans to wash daily cannot afford to be without this machine.

PRICES

Complete with stand and brushes, to wash 8-gallon cans.....	\$6 50
Complete, combined machine, including one stand and two spreaders and brushes to wash 8 and 10-gallon cans	7 50
Complete, combined machine, including one stand and two spreaders and brushes to wash 8 and 10-gallon cans	8 50

EXTRAS

Brushes per set for 8-gallon cans.....	\$0 75
Spreader and set of brushes only, for 8-gallon cans.....	1 00
Spreader and set of brushes only, for 10-gallon cans.....	2 50
Spreader and set of brushes only, for 10-gallon cans.....	3 00

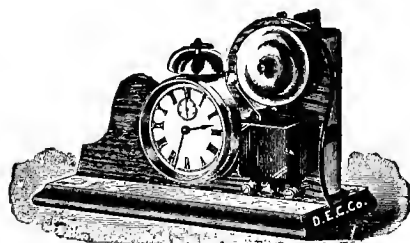
"GET UP" ELECTRIC ALARM CLOCK

A CLEVER IDEA

A GOOD LOOKING CLOCK

A CLOCK THAT NEVER SLEEPS

EVERY FACTORY-MAN SHOULD HAVE ONE



Size, height 7 $\frac{3}{4}$ in., length 12 in., width 5 $\frac{1}{2}$ in.
Made in Antique Oak, highly polished. Put up separately in heavy cardboard boxes.

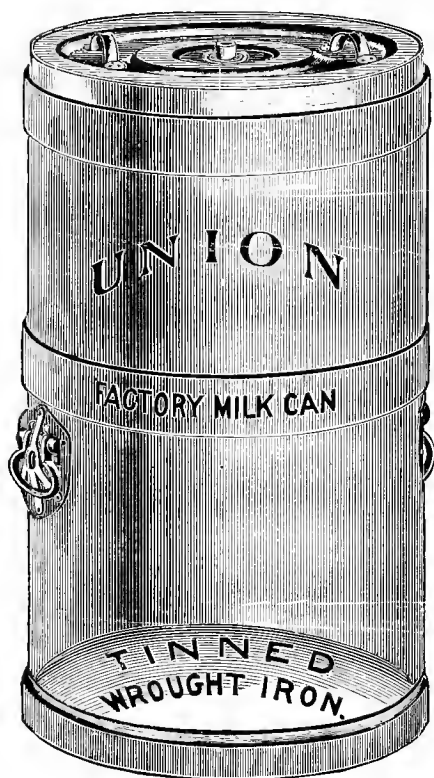
So is said by the ones who have seen our latest improved "Get Up" clock.

No switch—No wires to clock—No getting out of order—Two alarms—Works automatically—Will ring until stopped—Very noisy—No over-sleeping—Dry battery—Costs little money—Bound to get you out of bed.

Net price.....	\$3 75
Extra batteries, each.....	75

MILK CANS.

UNION.



The Union can is acknowledged to be the strongest and lightest milk carrying can in the market. It has the latest improvement in bottoms for cans carrying milk. It consists of a concavo-convex disc stamped from heavy wrought iron plate, and a hoop made of iron manufactured for this special purpose. Both are thoroughly tinned. They are put together in such shape as to mutually strengthen each other, and virtually form one solid piece. The bodies are made of large sheets of tin, with only one seam lengthwise of the can. The inside presents a smooth surface, easily cleaned. This is a valuable feature. The cover is so made that it fits smoothly and perfectly, avoiding all slopping and waste of milk.

CANS MADE UP.

20 gallon.....	.....
30 ".....	.....
40 ".....	.....
50 ".....	.....

STOCK COMPLETE.

20 gallon.....	.....
30 ".....	.....
40 ".....	.....
50 ".....	.....

A set of stock consists of one large sheet of heavy tin for body, bottom, cover, top hoop, center band, side and cover handles.

HODO.

This is an exceedingly cheap, strong and durable can for hauling milk to the factory.

It will be found quite as serviceable as cans costing one-third more money.

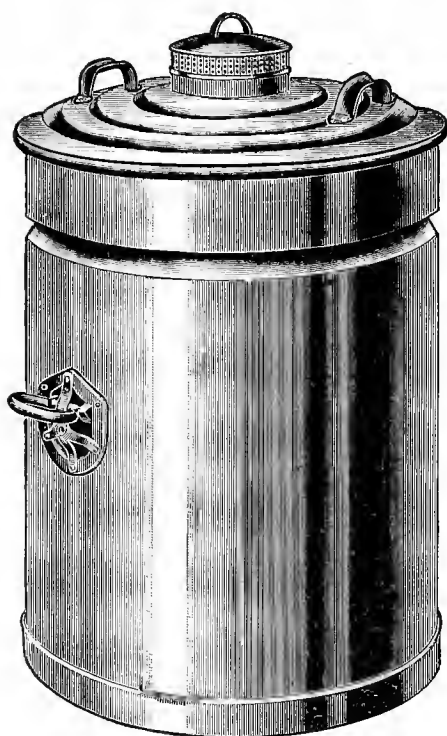
Furnished made up only.

SIZES AND PRICES.

15 gallon.....	\$3 40
20 ".....	3 85
30 ".....	4 75



MILK CANS



“EMPIRE STATE”

The special improvement used in this can consists of the bead or indentation, which is pressed into the body of the can by machinery made especially for the purpose. The bead effectually and completely prevents the slopping of milk while being transported over rough roads, as the milk striking the bevel on the lower part of the bead is thrown towards the center of the can, and is thus prevented from passing up between the cover rim and the body of the can. The can may be filled within two inches of the top and not a single drop will slop out in driving over a rough country road.

The cover fits loosely on the can so that the tinning is not scraped off the inside of the can by the cover.

Another valuable improvement is the method of ventilation. The center of the can cover is perforated about six inches in diameter, which is protected from rain and dust by the removable tin cover, with perforations in the rim of it.

Protection from rain.—The Empire State milk can cover is made without double-seaming the cover rim onto the cover and makes a complete roof over the can so that it may stand out

of doors during a rain storm without any water getting into the milk, while the milk is all the time well ventilated.

This milk can has been in use for several years in every part of the country, and has in every case given satisfaction. As a railroad milk can it has no equal, because so strong, and so easily cleaned (because it is open topped) and so thoroughly ventilated. They are made either with or without ice chamber or well, as desired. The ice well is attached to cover, and comes out of can when the cover is lifted, and by its use milk or cream can be shipped long distances in perfect condition.

We claim simplicity and durability in construction; a can easy to clean; a perfect ventilation; the milk or whey does not slop over; the can cover never sticks; the cover makes a good strainer; protection from storms; cover handles will not pull off; cover rim will not get broken; the tin will not be scraped from inside of can, and therefore the milk is not injured by iron rust. The Empire milk can keeps the milk in perfect condition in transportation, because the animal heat escapes through the ventilator and is replaced by pure air.

SIZES AND PRICES

With solid half-round top hoop, no center hoop.

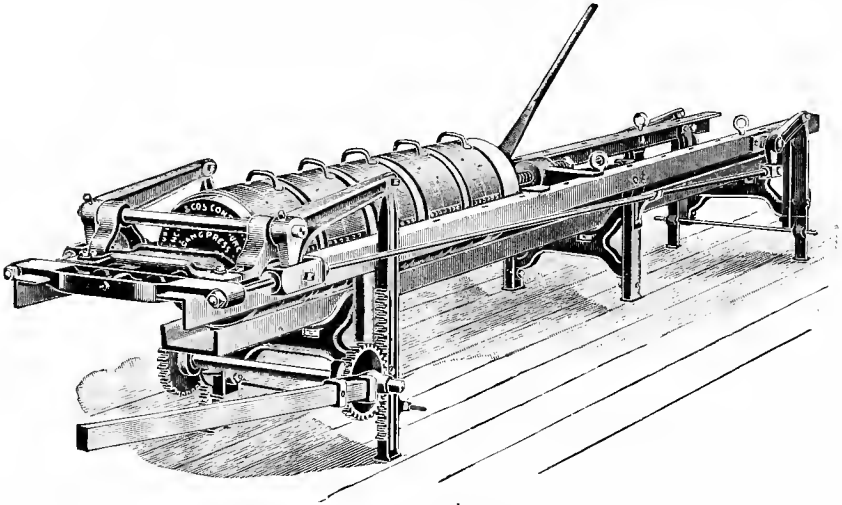
SIZES	CAN STOCK	MADE UP	SIZES	CAN STOCK	MADE UP
10-gal.....			30-gal.....		
15 “.....			40 “.....		
20 “.....			50 “.....		

With solid half-round top hoop and half-round center hoop.

SIZES	CAN STOCK	MADE UP	SIZES	CAN STOCK	MADE UP
20-gal.....			40-gal.....		
30 “.....			50 “.....		

Write for quotations.

THE "HELMER" PATENT CONTINUOUS PRESSURE STEEL GANG CHEESE PRESS



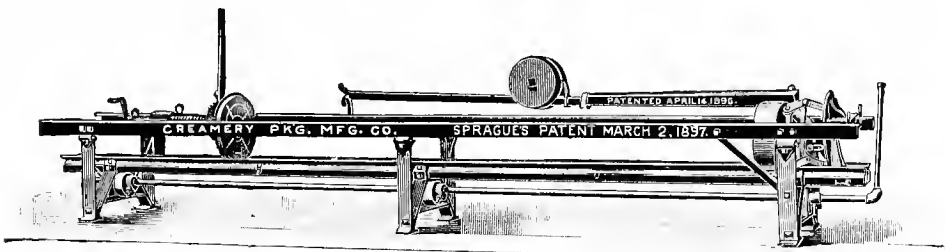
The Helmer Patent Continuously-Increasing Pressure Press has now been on the market four years, and a large number have been sold. It was the first thoroughly practical continuous pressure cheese press and it has thoroughly proven the claims that we made for it when it was first placed on the market: namely, that it effects a great saving in labor and that it produces a better cheese, especially of more uniform texture. For the past two seasons we have been manufacturing this press of the new steel frame construction, as shown in the cut. The working of the press is entirely automatic. It is operated in the same way as the old style gang press; by simply working the lever, the press rises from the floor, thereby utilizing the weight of the press and cheese themselves in keeping a pressure on the cheese. It is the first and only press to successfully do this and to automatically press the cheese without the use of any outside weights. After the cheese have been put to press, the press gradually settles down towards the floor, and the automatic mechanism keeps a constant pressure on the cheese, taking up the slack so that after the press is once run up it requires no further attention.

In order to insure the greatest success with the automatic presses, we request and advise our customers to use hoops of our manufacture as they then will be sure of freedom from buckling and will have a correct standard of sizes. It is important, to obtain the best results, to have the hoops right in every way.

PRICE (WITHOUT HOOPS)

For pressing from 10 to 20 cheese, depending upon the thickness,
diameters $13\frac{1}{2}$ to 16 inches. \$75 00

THE PATENT "SPRAGUE AUTOMATIC" ADJUST- ABLE STEEL GANG PRESS



The **Patent Adjustable Steel Gang Press** represents the latest improvement in Gang Presses. Its special and distinctive feature is that the *side rails are laterally movable*, so that the width of the press is variable and adjustable. The movement of the side rails is controlled by the upright lever shown in cut at right-hand end of press. When this lever is drawn in one direction it spreads the side rails, and when pushed over in the opposite direction it draws the side rails together and *clamps or locks the hoops in the press*.

The two great advantages of this press over any other press are:

- (1) Hoops of any diameter can be used *in the same press* without making any changes or substituting any new parts, and
- (2) The hoops are locked or held firmly in the press so that they cannot bulge sideways or upwards, or, in fact, in any direction, as they are held true and central in the press. Crooked cheese are an impossibility in this press. Hoops are not subjected to the severe side strain due to "buckling" or "bulging" as in the ordinary gang press and the hoops will wear longer. One single size will take all the ordinary sizes of hoops, from 13½ to 16-inch diameter. Cheesemakers will find it very handy as they can change the diameter of their cheese without having to buy a new press.

PRICES WITHOUT HOOPS

With Automatic Pressure Block, complete.....	\$85 00
Without " " "	68 00

PRESSURE BLOCKS

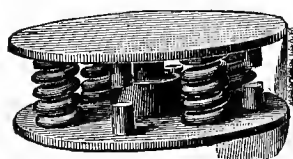
THE PATENT "SPRAGUE" AUTOMATIC

FOR USE IN STEEL OR WOODEN FRAME GANG
PRESSES USING 13½ TO 16-INCH
DIAMETER CHEESE HOOPS



PRICES

For 13½ to 16-inch diameter cheese.....	\$17 00
For Y. A. cheese, made to order.....	10 00

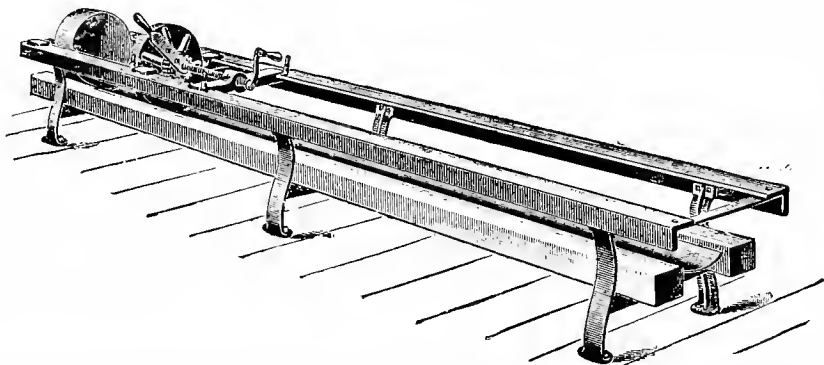


"NAYLOR'S" CONTINUOUS

FOR USE IN GANG OR UPRIGHT PRESSES

For large press.....	\$6 00
For Young America Press.....	5 00

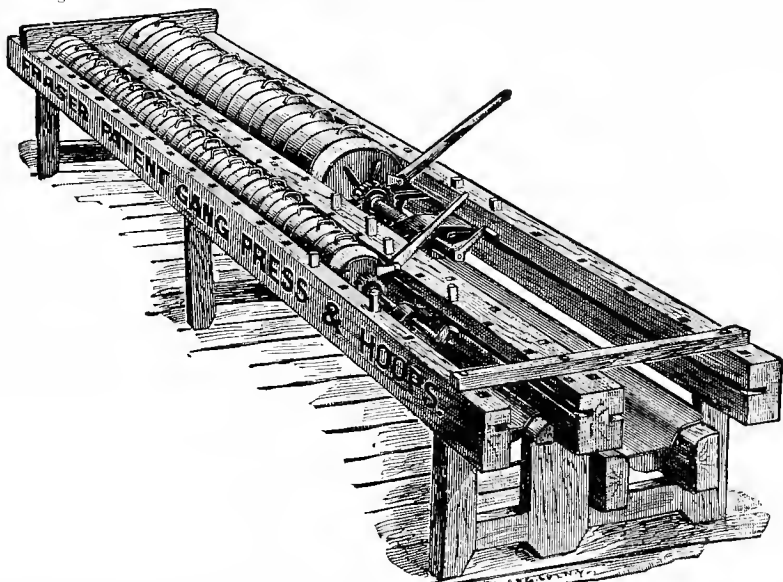
NEW STYLE STEEL "FRASER" GANG PRESS



Our new Steel Press is of great durability and strength—easily kept clean and sweet, so necessary in *all* cheese implements. We also make a *Single Gang Steel Press* for Young Americas. It is safe to say that a steel press will last twice as long as the ordinary wood press. Wood presses and combination wood presses for both Cheddars and Young Americas furnished when wanted.

SIZES AND PRICES

Standard size, 16 ft. long.....	\$45 00	For Young Americas, double row.....	\$50 00
Special sizes, 12 and 14 ft. long.....	43 00	Combination Presses.....	60 00
For Young Cheese.....	25 00		



SIZES AND PRICES. WITHOUT HOOPS

To press 10 to 20 "Young America" and 10 to 20 Cheddar Sizes in same press, each.....	\$60 00
Special Style to press 10 to 20 "Joker" and "Favorites," and 10 to 20 "Cheddars," to order...	65 00

OLD STYLE WOODEN FRASER GANG PRESS

SIZES AND PRICES. WITHOUT HOOPS

Old Style Wooden Gang Press to take 10 to 20 cheese, depending upon the thickness, sizes for 13½ to 16 inches diameter hoops.....	45 00
Old Style Double Wooden "Young America" Gang Press to press 20 to 40 7-inch diameter cheese in two side-by-side gangs, each.....	50 00
Old Style Single Wooden "Young America" Gang Press to press 20 7-inch diameter cheeses, each.....	25 00

CHEESE PRESS EXTRAS**"HELMER" GANG**

Right Elbow Levers for front end of press.....	marked "A" 1	\$1 50
Left " " " " " " " ".....	" "A" 2	1 50
Right " " " rear " " " ".....	" "B" 1	1 50
Left " " " " " " " ".....	" "B" 2	1 50
Pressure Head with arms.....	" "L" 2	50
Rod Buckle.....	" "S" 60	
Long Standard.....	" "M" 1	25
Short ".....	" "T" 1	00
Round Shaft.....	" "C" 1	00
Plain Leg.....	" "Q" 1	00
Side Bearing Bracket.....	" "Z" 75	
Bracket Leg (right).....	" "J" 1	50
" " (left).....	" "J" 2	50
Square Shaft.....	" "D" 1	00
Cross Piece for head of press.....	" "G" 2	00
Rod Buckle.....	" "P" 30	
Pawl for Compounding Lever.....	" "U" 30	
Ratchet Wheel.....	" "X" 75	
Screw with Ratchet Wheel.....	" "H" 4	00
Pressure Bar or Sliding Cross Piece.....	" "R" 2	00
Bearing Bracket for round shaft.....	" "Y" 75	
Nut for screw.....	" "N" 4	00
Cap ".....	" "E" 3	50
Rod Bracket or support.....	" "F" 15	
Compounding Lever Head.....	" "O" 60	
3/4-in. Draught Rod.....	" "I" 40	
Girt.....	" "W" 2	00
Lever and Pawl for Screw.....	" "K" 2	25
1/2-in. Draught Rod (long, not shown in cut).....		80
1/2-in. Tie Rod, double nutted each end (not in cut).....		30
Pressure Pin (not shown in cut).....		10

"SPRAGUE" GANG

No. 1, Half of Clamp for Shaft.....	\$0 30	No. 5, Head of Press (51 lbs.).....	\$4 50
" 2, Clamp for rod.....	15	" 6, Cap for screw.....	5 00
" 3, Legs for press (35 lbs.).....	3 00	" 7, Eccentric for Shaft.....	60
" 4, Nut for screw.....	6 00		

"NEW STYLE STEEL" GANG

	Black	Galvan.		Black	Galvan'
Screw complete.....	\$12 00	\$14 00	Rails, each.....	\$8 00	\$10 00
Nut separate.....	3 50	4 00	Top End Cross Piece.....	1 00	1 20
Screw only.....	3 50	4 00	Head Block End.....	2 50	3 00
Lever and Ratchet.....	2 00	2 50	Trough Cross Piece.....	75	90
Head for screw.....	3 50	4 00	Wood Rails and Cross Piece		
Legs for press, each.....	1 50	1 75	complete.....	5 00	5 00
Cross bar for legs, each.....	75	90	Pins for set.....	1 00	1 20

"OLD STYLE WOODEN" Y. A.

Cap.....	\$1 25
Nut.....	1 75
Lever.....	75
Screw.....	2 50
Ratchet.....	1 00
Pins.....	15
Screw complete.....	5 00

"OLD STYLE WOODEN" GANG

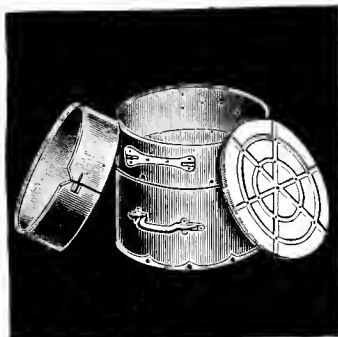
Cap.....	\$2 75
Nut.....	3 25
Lever.....	1 75
Screw.....	3 25
Ratchet.....	1 00
Pins.....	15
Screw complete.....	9 25

Prices on Extras for "Old Style Wooden" Combination Press are same as on the single "Y. A." or "Old Style Wooden" Gang Press.

GANG PRESS HOOPS

"FRASER" TINNED

We furnish all kinds of Gang Press Hoops. The latest and best thing in this line is the "Fraser Steel Tinned" which we recommend as being superior to the galvanized iron hoop, in that it is more durable, makes a finer-looking cheese—and the cheese can be taken out of the hoop much more easily.



SIZES AND PRICES

No.	Price	No.	Price
7 x7 or 9.....	\$2 00	14½ x 5 or 6.....	\$3 60
10 x5.....	2 40	14½ x 7 or 8.....	3 90
10 x6 or 7.....	2 60	14½ x 9 or 10.....	4 40
10 x8 or 9.....	2 80	14½ x11 or 12.....	4 60
11 x6 or 7.....	2 85	15 x 5.....	3 60
11 x8 or 9.....	3 00	15 x 6 or 7.....	4 00
12 x5 or 6.....	3 00	15 x 8.....	4 40
12 x7 or 8.....	3 60	15 x 9 or 10.....	4 60
13½ x6 or 7.....	3 15	15 x11 or 12.....	5 00
13½ x8 or 9.....	3 90	15½ x 6 or 7.....	4 40
13½ x10.....	4 20	15½ x 9 or 10.....	5 00
14 x5 or 6.....	3 30	16 x 5 or 6.....	4 80
14 x7 or 8.....	3 75	16 x 9 or 10.....	5 25
14 x9 or 10.....	4 00		



"WILSON" TINNED

The illustration shows the Wilson Hoop as it is made, in four pieces, and used in the following manner:

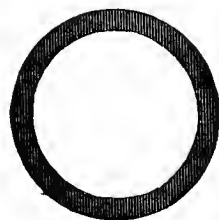
First place the cover or loose head, having the widest rim on the press, with the flange on the upper side. Slip the Bandage around the Bandager rim, or loose part of the Hoop leaving enough Bandage extending at either end to fold over the top and bottom of the cheese; then, spring this Bandager rim into the cover or loose part of the Hoop, put the part of the Hoop having the handles over the Bandager rim, being careful to have the small hooks pressed through the hoop so that the hooks will rest on the top of the Bandager rim, supporting this part of the Hoop in that position. Fill the curd into the Hoop, put on the cover with narrow rim, pull out the small hooks, which will allow the two parts of the Hoop to telescope, and the cheese is ready for the press. After sufficient pressure has been applied, pull out the Bandager rim and complete the pressing. As both ends of the Hoop are loose, the cheese is very easily removed.

LIST ON "WILSON" HOOPS SAME AS ON "FRASER" STYLE
We do not carry these Hoops in stock, and they are always made to order

FIBROUS PRESS RINGS

They are used generally. They can be cut to fit any sized hoop, and give good satisfaction.

From 10 to 16-inch hoop.....each, \$0 35
" 7 to 8-inch....." 25



Fibrous Press Ring

GALVANIZED IRON DIVIDING CIRCLES

For Y. A. Hoops.....each, \$0 40

BANDAGERS

For Y. A. Hoops.....each, \$0 50
" other sizes....." 75

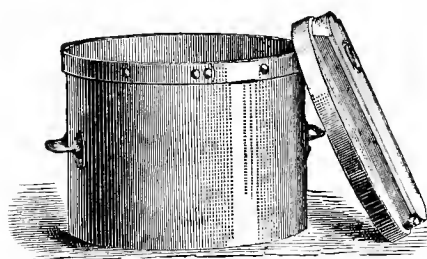
SACKERS

For cheese bandage.....each, \$1 75

IN ORDERING SACKERS, NOTE SIZES WANTED

GALVANIZED STEEL CHEESE HOOPS

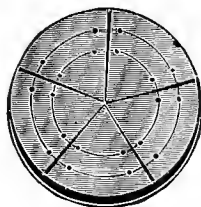
WITH HEAVY HARDWOOD FOLLOWERS FOR STANDING PRESS.



Hoops, 10 in. x 9 in.....	\$2 00
" 12 in. x 8 in.....	2 15
" 13½ in. x 6 or 7 in.....	2 25
" 13½ in. x 8 or 9 in.....	2 50
" 13½ in. x 10 or 12 in.	2 75
" 14½ in. x 10 or 12 in.....	2 80
" 14½ in. x 8 in.....	2 50
" 15 in. x 10 or 12 in.....	2 85
" 15½ in. x 10 or 12 in.....	2 90
Young America, 7 x 9 in.	2 00

FOLLOWERS.

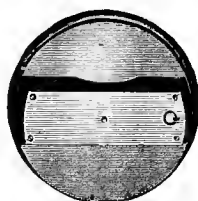
FRAZER.



PRICES.

Y. A.....	each, \$0 45
Other sizes	" 55

HARD WOOD.



PRICES.

10 to 12 inch.....	each, \$0 70
13 to 16 inch.....	" 0 80

FUNNELS FOR FILLING Y. A. HOOPS

Price, each.....	\$1 00
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"SPEED" KNIVES

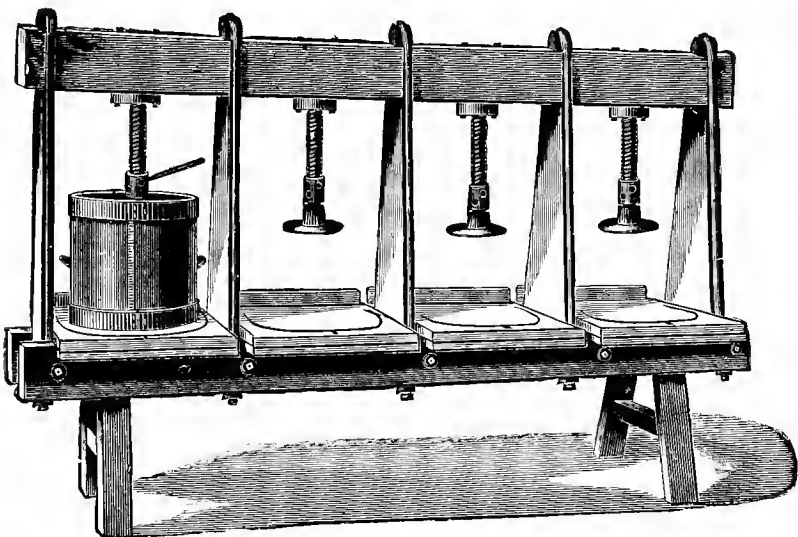
COCOA HANDLES



Just the thing to use in removing cheese from the hoops. By running it between the cheese and hoop it will separate them, leaving the cheese in good condition. Also used in taking cheese from shelves.

Length of Blade..	6 in.	7 in.	8 in.	9 in.	10 in.	11 in.	12 in.	14 in.
Price, each.....	\$0 50	\$0 60	\$0 70	\$0 80	\$0 95	\$1 20	\$1 45	\$1 70

STANDING CHEESE PRESS.



PRESS SCREW

The bottom sills of this press are made of 6x8, and the top piece of 6x8.

The rods pass up one side and over the iron saddles shown on the top of the press, and down on the other. Holes are bored through the top timber to allow the screw to pass up through when raised to allow the removal of the hoops. The divisions between the hoops are made of two-inch plank, and support the timber. This press can be made any desired length, to hold any number of cheeses.



RODS.

PRICE

1 Screw.....	\$22 50	4 Screws.....	\$45 00
2 "	27 00	6 "	60 00
3 "	37 50	8 "	75 00

Press screw, 1¼x20 inches high, each.....\$2 75

SADDLES.

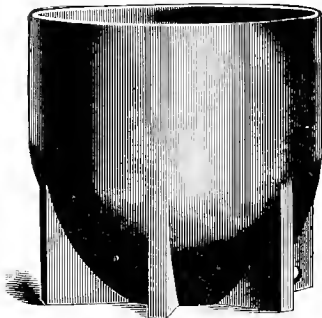


Rods, saddles and washers, per set.....\$1 50

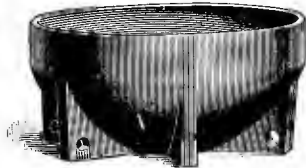


SPECIAL CHEESE MOLDS

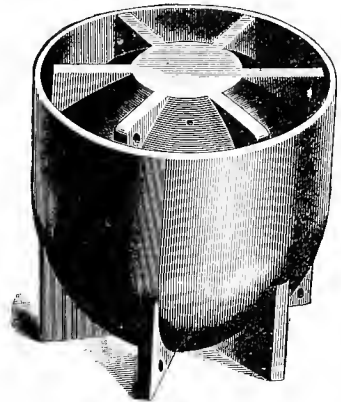
ADAMS CHEESE MOLDS



Edam Mold.



Mold Top

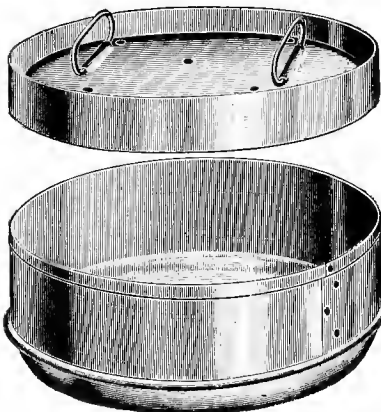


At Press

Considerable difficulty has been found in obtaining satisfactory wood for the Edam Cheese Molds. We have had such poor success in this direction that we determined to try a substitute in galvanized cast iron molds. The illustration showing the mold in several positions conveys fully the idea of the advantages of the iron mold. The lower half is made of sufficient depth so that when it is filled with curd, the other half of the mold, or top, will telescope it sufficiently to make the Edam Cheese round.

The price which we have put upon these molds make them cheaper than any wooden mold that has been sold. They will last a life-time. They can be re-galvanized should the galvanizing wear off.

Our price is \$3.50 each.



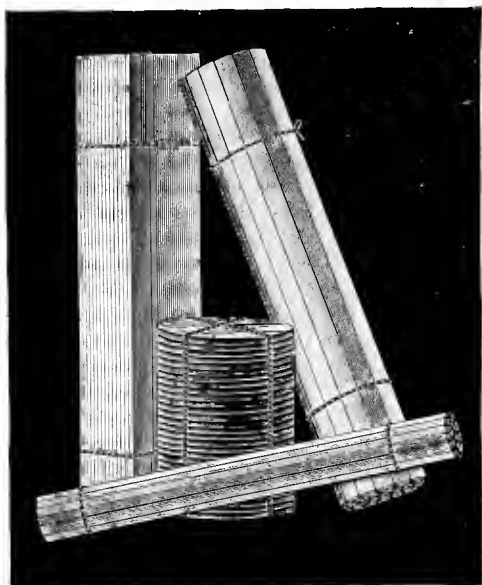
GOUDA CHEESE MOLD

A new fancy cheese is being marketed in some localities in oval form about nine or ten inches in diameter. We have provided a mold, as shown in the illustration; oval top and bottom, the top telescoping into the mold itself.

Price, each\$3 00

CHEESE BOXES

Our Hoops and Rims are rotary cut. Smooth and make a first-class box.
Made up or knock down. We make a specialty of car-load business.



This cut represents material for 50 complete boxes,
Average weight of same, 250 pounds.

PRICES

K.D stock complete for boxes
14½ inches or less diameter.

From Elgin—
5 inch deep.....\$.....

6	"	"	.....
7	"	"	.....
8	"	"	.....
9	"	"	.....
10	"	"	.....
11	"	"	.....
12	"	"	.....

From Mills in Michigan—
5 inch deep.....\$.....

6	"	"	.....
7	"	"	.....
8	"	"	.....
9	"	"	.....
10	"	"	.....
11	"	"	.....
12	"	"	.....

We can ship cheese boxes from Elgin, Ills., Mankato, Minn. and Kansas City, Mo.

MADE UP.

Jokers, 10 to 11x6 to 8 in.....each,	\$....
Favorites, 12x6 to 8 in.....	".....
Cheddars, 13 to 16x8 to 12 in.....	".....
Flats, 13 to 16x4 to 7 in.....	".....
YA's, 17x17 to 8 in.....	".....
200 lots, less per box .. f.o.b., Elgin, Ill.	.....

SCALE BOARDS

FOR AMERICAN CHEESE

Our scale boards are made from the very best white wood. Boards are perfect and bundles run full count. Furnished in the following sizes:

11-inch, about 1,600 to bundle, per bundle.....	\$....
13 " " " " " ".....	".....
14 " " " " " ".....	".....
15 " " " " " ".....	".....
16 " " " " " ".....	".....

FOR SWISS CHEESE

26-inch, about 1,500 to bundle, per bundle.....	\$....
28 " " " " " ".....	".....
30 " " " " " ".....	".....

We furnish special sizes of round and square scale boards.

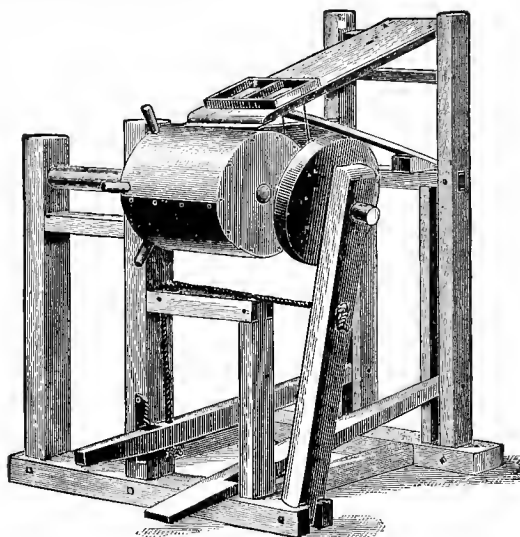
See Monthly Price List for Prices.



CHEESE BOX MACHINES.

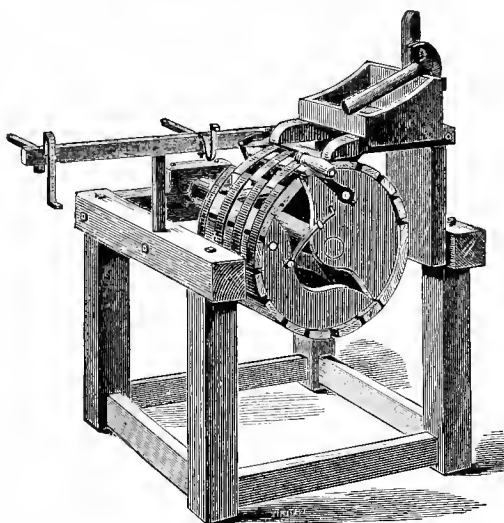
ROE PATTERN.

This cut represents a very convenient form of cheese box machine. It is used by large box manufacturers, and has ample capacity for any factory



Price, each.....\$15 00

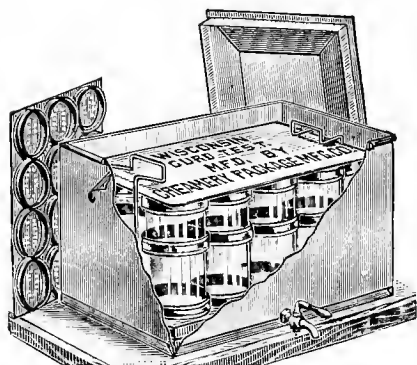
HARRIS PATTERN.



SIZES AND PRICES.

With 1 drum to make 2 sizes.....	\$28 00
“ 2 drums “ 5 “	38 00

WISCONSIN CURD TEST



Cheese-makers are often troubled with gassy or floating curd, which makes defective cheese, creamerymen and milk dealers are perplexed with tainted milk without means of finding the source of the trouble. These faults come from some particular lot of milk which contains impurities. The Wisconsin Curd Test detects these defects and enables the cheese-maker, creameryman or milk dealer to trace the fault to the dairy, and the very cow which causes the trouble.

HOW TO MAKE THE TEST

Thoroughly cleanse the jars with live steam or scalding water. Take the rack of jars to the taking-in room; take a sample of milk from the patron, numbering the jar to correspond with the patron's number on the milk sheet, fill the jar about two-thirds full, continue until all the jars in the rack contain a sample. Put on the tight covers and put the rack in the vat. Fill vat with water as high as the milk in bottles, set an oil stove under the vat and heat the water in the vat to 100 degrees F. Take out the rack with jars and shake occasionally. When the milk reaches 98 degrees F. add 10 drops of rennet extract to each jar, shake the rack with a rolling motion, and after the milk curdles let it stand about 20 minutes, or until firm, then cut the curd fine with a thin knife, rinsing the knife thoroughly for each jar. When the curd settles, take the perforated covers and put them on top of the jars, then turn the rack bottom side up and shake gently until all the whey has run off. Let it stand a few minutes in the vat and then repeat the operation until all the whey is drained off. The more completely the whey is drawn off the better the test. Put tight covers on jars and return to vat. Now regulate the wick of the oil stove to hold the temperature at 98 degrees F.

Let the bottles stand from 6 to 12 hours, then open the jars, drain off what whey remains and cut the curd in two pieces; take them from the jar, and those curds having a spongy texture, or bad odor, can be detected by smell, thus showing which patron is furnishing the bad milk. Now take the rack of jars to the patron's barn and take a sample of milk from each of the cows and test them the same as above; this will locate the identical cow that is causing the trouble.

PRICES

One Dozen Bottle Test, without table.....	\$12 00
Two " " " " " ".....	15 00

EXTRAS FOR WISCONSIN CURD TEST

Bottles, per dozen.....	\$1 00
Vat for 2 dozen bottles.....	3 00
Vat for 1 dozen bottles.....	2 50
Bottle strainer for 2 dozen.....	2 00
Bottle strainer for 1 dozen.....	1 75
Cover for 2 dozen bottles.....	1 50
Cover for 1 dozen bottles.....	1 25
Bottle Frame or Support for 2 dozen.....	3 00
Bottle Frame or Support for 1 dozen.....	2 50
Faucets, each.....	25

THE MARSHALL RENNET TEST

SIMPLE RELIABLE

INDISPENSABLE TO EVERY CHEESEMAKER



The Marshall Rennet Test is not intended for use by the chemist in the laboratory, but for the practical cheesemaker, enabling him, in a simple, practical way, to ascertain the condition of his milk, and as a guide for the manipulation of the milk and the curd in the vat.

What the cheesemaker needs is not so much an exact chemical determination, as it is a *guide*, showing him the comparative condition of his milk, its variations from one day to another, so that he can regulate matters and arrange the manipulations of the milk and the curd, with the view of making a uniform product.

DIRECTIONS

As soon as the milk in the cheese vat is heated to the proper temperature, usually 86° , measure off with the pipette (**b**) one cubic centimeter of Rennet Extract, filling the pipette to the mark on the stem, and empty it into the little glass (**c**) previously about half filled (to the mark) with pure, cold water, free from lime or alkali (boiled water or condensed steam, cooled to ordinary temperature, is the best). Rinse the pipette by drawing water into it from the glass (**c**), and let the rinsings run back into the glass. Mix well by shaking the glass.

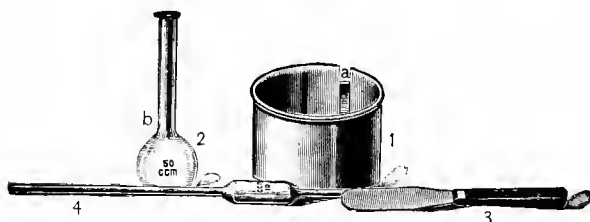
See to it that the little outlet tube in the bottom of the cup (**a**) is clean and free from obstructions. Stir the milk in the cheese vat and fill the cup (**a**), by dipping it down in the milk. Place it on a level board so that the milk will run out through the outlet in the bottom. Take the glass of diluted Rennet Extract in one hand and the spattle (**d**) in the other. Watch the level of the milk in the cup, and the moment it drops to the (**o**) mark, pour in the diluted Rennet Extract and stir it in well. Then leave it alone.

When the milk stops running, read off on the graduated scale how much milk has run out.

Price, complete.....\$2 50

Send for Circular containing complete description

MONRAD'S RENNET TEST.



Take a 5 c. c. pipette (Fig. 4) and fill into a 50 c. c. measuring bottle (Fig. 2), which has previously been two-thirds filled with water. Rinse the pipette by filling it and emptying it two or three times from the mixture and then fill water in the measuring bottle to the mark (b) on the neck (with the pipette). Shake the bottle well and then use 5 c. c. of this diluted rennet extract to 160 c. c. milk. The tin cup with a mark (one of which [a] is shown) on each side, indicating the 160 c. c. To keep an even temperature, use the tin cup (Fig. 1), loaded under the bottom with solder, so as to float it in the milk vat. This test is calculated to take 120 seconds for commencing coagulation, as against 60 in the other, and thus is another element of certainty introduced. A suitable knife or spatula (Fig. 3) is necessary to stir the rennet in with (which should be done quickly and not last more than five or six seconds), as well as wherewith to observe the workings of the milk. This insures five times as exact a test at the expense of two minutes extra work. The diluted rennet should not be used after it has been standing for more than fifteen minutes; a new one should be prepared.

Price complete.....\$1 00

EXTRAS.

Graduated cup.....	each,	\$0 60
5 c. c. pipette.....	"	25
50 " graduated flask.....	"	75
Spatula	"	25

RENNET EXTRACT.

The rennet extract may be used with full as well as skimmed milk. Heat the milk to the degree at which it is to curdle. If cheese coloring is to be used, first put that into the milk and mix well by careful stirring. Next, in the measuring glass, measure the rennet extract, quantity calculated according to table annexed, and mix it in a little water—say, one gallon of water to every pint of extract. This secures a more even action of the rennet throughout the mass of milk than could be secured if it is added in the concentrated form. Then pour the mixture into the milk, stir vigorously, not only while adding the extract, but also for two or three minutes after; then leave the milk alone until it is ready for cutting.

TABLE.

The quantity of rennet required for a certain quantity of milk depends upon the degree of the heat of the milk, and upon the time desired for coagulating it.

One thousand pounds of milk require for curdling from twenty-five to forty-five minutes—

At a temperature of	95 degrees Fahrenheit,	from	1 oz. 5 dr.	to	2 oz. 4 dr.
“	“	88½	“	“	“ 2 oz. 0 dr. to 3 oz. 3 dr.
“	“	52	“	“	“ 2 oz. 4 dr. to 4 oz. 2 dr.

One pint will coagulate from 3,000 to 8,000 pounds of milk, according to heat and time, as stated above. Diseased milk generally curdles much more quickly, but sometimes it fails altogether.

SUGGESTIONS TO THE MANUFACTURER OF FULL CREAM FANCY CHEESE.

After weighing, the milk should be put into the vats and cooled to sixty-five or seventy degrees, stirring it occasionally, so as to allow the animal odors to escape. Fill the vats only partly full with the night's milk, so as to leave room for the morning's milk. Do not cool the night's milk any more than is necessary to keep it from souring. It is better that it should vaporize—"give off" from itself, so to speak—than to cool it so much that the surrounding air condenses upon its surface, thereby precipitating into it any impure odors that may be in the room.

SECOND.—Mix the morning's milk when it is received, as indicated, in the vats with the night's milk.

THIRD.—Turn on the steam from the boiler and heat the water in the space between the tin and the wooden vats, so that the milk in the tin vats shall run up to eighty-five degrees, gently stirring the milk in the meantime, and add the Annattoine coloring, as per directions, and mix in thoroughly.

FOURTH.—Add one pint of the Danish rennet extract to each 3,000 or 5,000 pounds of milk, according to the season, so that coagulation will take place in twenty to thirty minutes, when the curd will be ready to cut.

FIFTH.—Cut the curd with both the perpendicular and horizontal curd knives. After allowing to stand for a few minutes, turn on the steam and heat the water under the cheese vat so that the temperature of the milk and curd shall gradually run up to ninety-five or ninety-eight degrees Fahrenheit, depending upon the season, continuously stirring the whey and curd so as to thoroughly cook every particle of the cheese curd. It is important to stir gently, so as not to start the white whey.



RENNET EXTRACT

**CHR. HANSEN'S DANISH RENNET
EXTRACT**

During the past season some cheese makers, led astray by tempting offers of cheap extracts, have had a sad and costly experience with claims for allowance on cheese which were rotten or off flavor before reaching the consumers. These makers, wiser, if poorer, are now falling back on the



Old Reliable

CHR. HANSEN'S DANISH RENNET EXTRACT

Which never fails and always does what is claimed for it.

As to purity it stands unequalled, and considering its curdling power, it is by far the cheapest in the market.

PRICES

Barrels of about 45 gallons.....	per gallon, \$.....
Half-barrels of 20 or 24 gallons.....	“.....
Ten-gallon kegs.....	“.....
Five-gallon kegs.....	“.....
Cases of 12 or 6 one-gallon bottles or jugs.....	“.....
Single gallon.....	“.....

CHR. HANSEN'S RENNET TABLETS

**FOR CHEESE MAKING
ON THE FARM**

For cheese making on the farm these Tablets are indispensable.

Their Curdling Power is Astonishing

• One No. 1 Tablet is sufficient for 500 lbs. of milk, and one No. 2 Tablet for 100 lbs. Handy to send by mail. Put up in 4 styles of packages, at the following prices:

1 can, 100 No. 1 Tablets (postage 12c extra)	\$....	1 box, 50 No. 2 Tablets, by mail, prepaid	\$....
1 " 200 " 2 " 6c "	....	1 " 24 " 2 " "	....

Eight cents extra for registration of mail packages.



“JUNKET”

Dainty, Delicious, Healthful, Nutritious JUNKET

Is one of the **most popular dishes for breakfast or dessert** ever prepared. It requires only one of **Chr. Hansen's Junket Tablets** and a quart of milk, sweetened and flavored, to make a quart of pudding.

No Baking No Boiling No Eggs No Corn Starch

JUNKET, when frozen as an Ice Cream, makes the most exquisitely delicious "JUNKET CREAM ICE" that mortal ever tasted, and this, when served as



"JUNKET CREAM SODA"

In the place of Ice Cream Soda, gives you a **deliciously refreshing drink**, nourishing and healthful, and an aid to digestion.

A charming little booklet entitled

"Dainty Delicacies for Artistic Desserts"

Giving over thirty different recipes, comes with each package of ten tablets, the whole selling



FOR TEN CENTS



CHEESE COLOR

CHR. HANSEN'S DANISH CHEESE COLOR



Now universally used for all first-class cheese, inferior preparations having given such poor satisfaction and so much trouble, that intelligent cheese makers have come to the conclusion that Chr. Hansen's is the

Only Reliable Cheese Color

The Cheese Merchants all advise the makers to use no other

Produces a Rich, Creamy, Non-Fading, Uniform Color.



PRICES

Five-gallon jugs, per gallon.....	\$....
Cases of 12 or 6 one-gallon bottles or jugs, per gallon.....	.....
Single gallon.....	.....
4-oz. bottle.....	.....
4-oz. bottle, by mail.....	.....

For Prices see our Monthly Price Current

CHR. HANSEN'S CHEESE COLOR TABLETS

The most concentrated, the purest and the handiest cheese color for farm cheese making.

Should be used by all who are using Chr. Hansen's Rennet Tablets

12 Tablets equal in coloring power to 4 oz. of Chr. Hansen's Liquid Cheese Color.

Put up in vials holding 12 tablets each. Sent by mail at 30 cts. a vial.

Box of 12 Vials.....\$3 00

Postage, extra, 12c. Registration, extra, 8c.



CHR. HANSEN'S COCO-RENNET

A Palatable Digestive Tablet, that immediately relieves the distress so often felt after a hearty meal.

One or two of the Tablets allowed to dissolve in the mouth after each meal will remove the distress caused by over-eating or indigestion, and will prove very beneficial in all forms of stomach trouble caused by poor digestion. Many cases of nervousness and insomnia are directly traceable to the stomach, and Coco-Rennet has proved quite effective in such troubles.

The Coco-Rennet Tablets are put up in packages retailing at 10 cents each.

For sale by druggists

Under no circumstances will we be responsible for delivery by mail unless 8 cents extra are sent for registration.

In ordering please write your name and address plainly



CHEESE BANDAGE

“EXCELSIOR”

The Best—The Neatest—The Cheapest



The large increase in our trade for “Excelsior” Bandages is the very best testimonial that could be given for them. They are being exclusively used by many of the largest Cheese Manufacturers in the country, and are giving the very best of satisfaction. They are carefully made from a fine grade of soft cloth and make a finer appearing cheese than any other style of bandage. The warp of cloth which we use in making these bandages runs straight both ways. There is no danger of cracking as is the case with other bandages. We make them both taper and straight seam. The taper seam bandage is for the Fraser style Hoop, and the straight seam for the old style galvanized iron hoop. In using the “Excelsior” bandages, there is no loss in cutting. Every bandage paid for will cover a cheese. The cloth is one-half heavier than that in any other style of bandage. These two items taken into account, make it the cheapest bandage.

STOCK SIZES AND PRICES—Either Taper or Straight Seam.

		Per M.			Per M.			Per M.
7	x	5	.....	\$ 6 00	12	x	8½	\$15 00
7	x	8½	.....	9 00	12	x	9	 15 50
7	x	9	.....	9 50	13	x	6	 11 50
7	x	9½	.....	10 00	13	x	6½	 12 00
7	x	10	.....	10 50	13	x	7	 13 00
8	x	8	.....	11 50	13½	x	5	 11 00
10	x	6	.....	10 00	13½	x	5½	 11 00
10	x	8	.....	14 00	13½	x	6	 12 00
19	x	10	.....	15 50	13½	x	7	 13 50
10½	x	6	.....	10 00	13½	x	7½	 14 00
10½	x	7½	.....	11 00	13	x	9	 16 00
11	x	7	.....	12 50	13½	x	13	 24 50
11	x	8	.....	13 00	14	x	5½	 12 50
11	x	8½	.....	14 50	14	x	6	 12 50
11¼	x	7	.....	13 00	14	x	7	 13 50
11¼	x	8	.....	14 00	14	x	7½	 14 00
12	x	6	.....	11 00	14	x	8	 14 50
12	x	7	.....	13 00	14	x	8½	 15 00
12	x	8	.....	13 50				
					14	x	9	 16 00
					14	x	13	\$24 50
					14	x	14	 25 50
					14½	x	7	 14 00
					14½	x	7½	 14 50
					14½	x	8	 15 00
					14½	x	8½	 15 50
					14½	x	9	 16 00
					14½	x	10	 18 00
					14½	x	12	 22 50
					14½	x	13	 25 00
					14½	x	14	 26 00
					14½	x	15	 27 00
					15	x	7½	 16 00
					15	x	9	 17 00
					15	x	13	 26 00
					15	x	14	 27 00
					15	x	16	 29 00

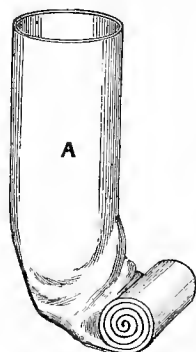
Other sizes furnished at proportionate prices. When ordering, state for what size of hoop the bandages are wanted.

“READY MADE”

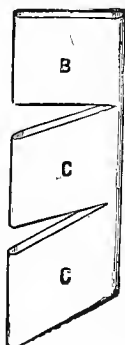
We furnish “Ready Made” Bandages in the same size as the “Excelsior”. These bandages are made from bleached cloth, in the same weight as the regular cheese cloth, and much coarser than the grade of cloth used in “Excelsior” Bandages.

“SEAMLESS”

7-inch.....	per yard, \$....
10, 11 and 12-inch.....	“
13½-inch.....	“
14, 14½ and 15-inch.....	“
15½ and 16-inch.....	“



SEAMLESS



See Monthly Price List for Prices

SCALES.

Howe or Fairbanks.

WITH SINGLE BEAM AND WHEELS.

Capacity.....400 lbs.	Platform..... 15 x 24	Price, \$26 00
" 600 lbs.	" 16 x 24	" 33 00

Same, without wheels, \$3 00 less.

WITH DOUBLE BEAM.

WITH WHEELS.

Capacity, 400 lbs.;	Platform, 15x22;	Price, \$30 00
" 600 lbs.;	" 16x24;	" 37 00
" 1000 lbs.;	" 17x26;	" 47 00



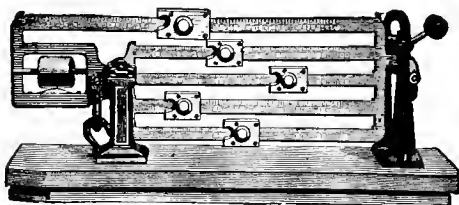
WITHOUT WHEELS.

Capacity..... 400 lbs.	Platform.....15 x 22	Price .....\$27 00
" 600 lbs.	" 16 x 24	" 34 00
" 1000 lbs.	" 17 x 26	" 43 00

FIVE BEAM SCALE.

WITHOUT WHEELS.

Capacity.....600 lbs.
Platform 16 x 25.
Price.....\$47.00.



WITH WHEELS.

Capacity.....	600 lbs.
Platform	16 x 25.
Price	\$50.00.

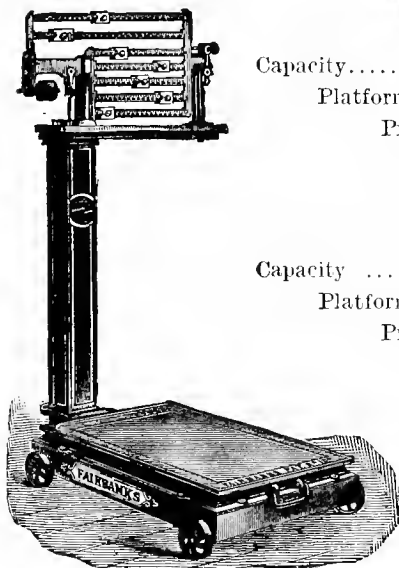
SEVEN BEAM SCALE.

WITHOUT WHEELS.

Capacity	1000 lbs.
Platform	17 x 26.
Price	\$56.00.

WITH WHEELS.

Capacity.....	1000 lbs.
Platform	17 x 26.
Price.....	\$60.00.



SCALES.

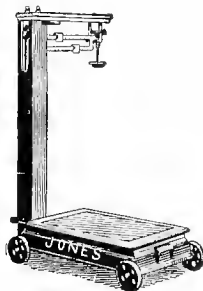
JONES' DAIRYMAN'S SCALE.

WITH DOUBLE BEAM AND WITHOUT WHEELS.

Capacity	$\frac{1}{4}$ to 400 lbs., platform	15 x 21.....	\$27 00
"	$\frac{1}{4}$ to 600 " " "	16 x 22.....	34 00
"	$\frac{1}{4}$ to 800 " " "	17 x 26	43 00

WITH WHEELS.

Capacity	$\frac{1}{4}$ to 400 lbs., platform	15 x 21.....	30 00
"	$\frac{1}{4}$ to 600 " " "	16 x 22.....	37 00
"	$\frac{1}{4}$ to 800 " " "	17 x 26.....	47 00



CHEESE FACTORY SCALE.

WITH FIVE BEAMS AND SLIDING POISES, WITHOUT WHEELS.
Capacity $\frac{1}{4}$ to 600 lbs., platform 16 x 25.....\$47 00

WITH WHEELS.

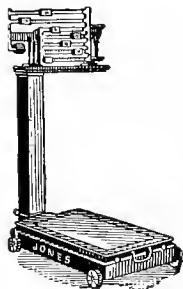
Capacity $\frac{1}{4}$ to 600 lbs., platform 16 x 25..... 50 00

WITH SEVEN BEAMS AND SLIDING POISES, WITHOUT WHEELS.

Capacity $\frac{1}{4}$ to 1000 lbs., platform 17 x 26.....\$56 00

WITH WHEELS.

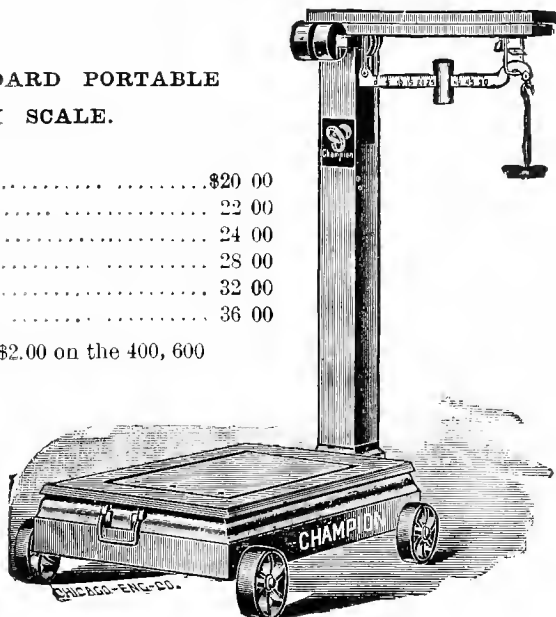
Capacity $\frac{1}{4}$ to 1000 lbs., platform 17 x 26..... 60 00



CHAMPION STANDARD PORTABLE PLATFORM SCALE.

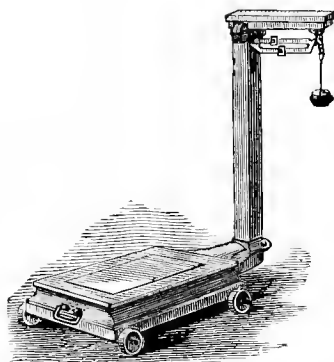
Capacity	400 lbs.....	\$20 00
"	600 "	22 00
"	800 "	24 00
"	1,000 "	28 00
"	1,200 "	32 00
"	1,500 "	36 00

Double beam, extra net, \$2.00 on the 400, 600 and 800 pound sizes.



SCALES

"IDEAL" CREAMERY



Our "Ideal" Scales are made expressly for us and are a high-grade scale at a moderate price. We have sold them to the trade for several years with excellent satisfaction. If you are in the market for a scale it will pay you to investigate the merits of the "Ideal."

We send to responsible parties on approval.

PRICE

With single 100-lb. beam and sliding poise,
with wheels.

Capacity 600 lbs., platform 16x24 in.....	\$33 00
" 400 " " 15x22 ".....	26 00

With double beam, with wheels.

Capacity 1,000 lbs., platform 17x26 in.....	\$47 00
" 600 " " 16x24 ".....	37 00
" 400 " " 15x22 ".....	30 00

FOLDING CREAMERY SCALES

CAPACITY

110 POUNDS ON LOWER BEAM

110 OUNCES ON UPPER BEAM

This scale when not in use can be folded perfectly flat against the wall entirely out of the way.

When hung for use the platform sets upon the floor, the load is put on, and then by throwing up the cam at lower end of base plate, the whole scale with load is raised free from the floor, the weight taken, then by turning the cam down the load is placed solid upon the floor again.

For salting butter this scale has no equal. The lower brass beam is graduated in pounds, and the upper brass beam is graduated in ounces. There is a counter balance on back of beam to balance the tub. Place the tub upon the scale and weigh the unsalted butter. Then slide the ounce poise out even with the lower poise and add on salt until the scale balances. The scale does its own figuring as the ounces need not be computed.

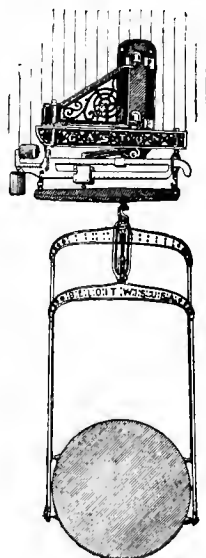
The platform and hangers are galvanized so as not to be injured by coming into contact with salt.

The scale is entirely out of the way when not in use.

PRICE

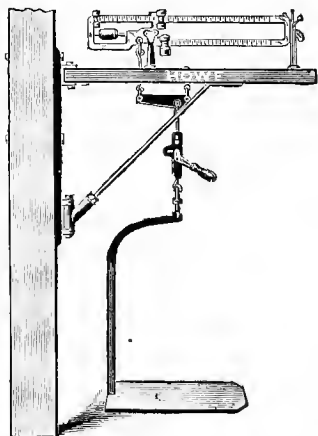
2-oz. to 110 lbs.....	\$23 00
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FAMILY SIZE, \$4.00



SCALES

"SWINGING" CREAMERY

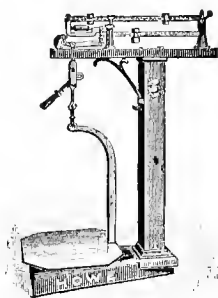


Top beam, 100 lbs. by $\frac{1}{2}$ oz.

Lower beam, 15 " " 1 "

Price.....\$26 00

"PORTABLE" CREAMERY



PRICE

With or without Wheels

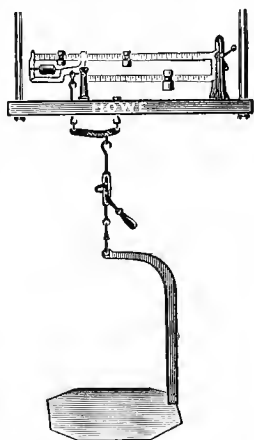
100-lb., without wheels.....\$26 00

100 " with wheels..... 30 00

200 " without wheels..... 28 00

200 " with wheels..... 32 00

"SUSPENSION" CREAMERY

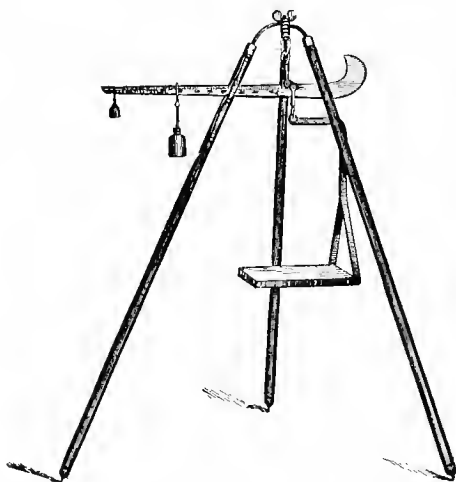


Top beam 100 lbs. by $\frac{1}{2}$ oz.

Lower beam 15 " " 1 "

Price.....\$20 00

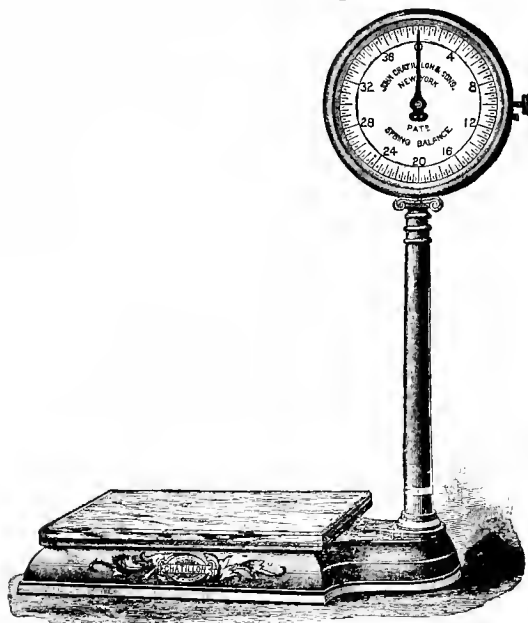
"PORTABLE" CHEESE



Price\$35 00

SCALES.

CHATILLON CREAMERY—With High Column, Double Dials.



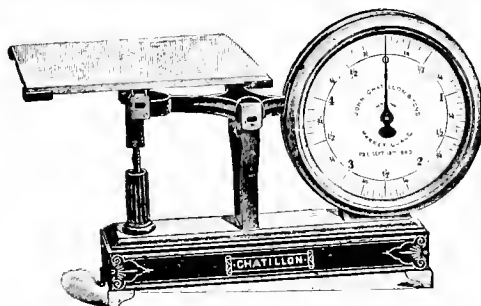
SMALL DIAL—6 INCH. WITH IRON PLATFORMS OR MARBLE SLABS.

32 lbs.	by 1	oz.	.....	each,	\$18 00
64 "	by 2	"	.....	"	20 00
128 "	by 4	"	.....	"	22 00

LARGE DIALS—8 INCH.

50 lbs.	by 2	oz	.....	each,	\$22 00
100 "	by 4	"	.....	"	24 00

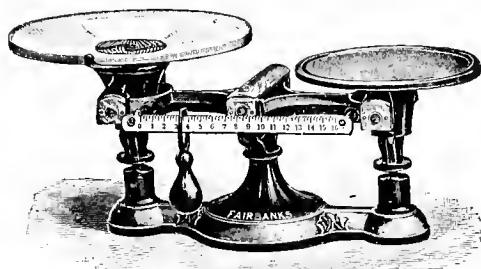
CHATILLON'S EVEN BALANCE—With Agate Bearings.



WITH LARGE DOUBLE DIALS AND MARBLE SLABS.

5 lbs.	by 1	½ oz.	.....	each,	\$20 00
10 "	by 1	"	.....	"	20 00
20 "	by 2	"	.....	"	20 00
40 "	by 4	"	.....	"	20 00

SCALES



New No. 826 A

BUTTER PRINT

Fairbank's "Agate" Butter trip cannot rust or corrode. First galvanized, then painted red. With brass tare beam and without scoop.

New No.	Capacity.	Price.
825 A	25 lbs. to $\frac{1}{4}$ oz.	\$18 50
826 A	15 " $\frac{1}{4}$ "	12 50
827 A	6 " $\frac{1}{4}$ "	11 00

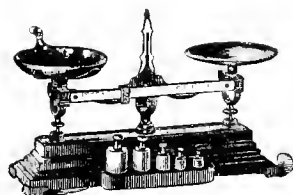
Price includes Galvanized Iron Weights, Six Agate Bearings, Large Round Concrete Porcelain Plate and Iron Plate, Extremely Sensitive. Above Prices NET, no Discount.

FAIRBANK'S "COMMON" BUTTER TRIP

Steel Bearings, furnished in bright red color, not galvanized.

WITH BRASS TARE BEAM AND WITHOUT SCOOP

New No.	Capacity	Diameter of Porcelain Plate	Prices with Iron Weights
825	16 lbs. to $\frac{1}{4}$ oz.	12 inches	\$14 25
826	10 " $\frac{1}{4}$ "	10 "	11 00
827	6 " $\frac{1}{4}$ "	8 "	8 75
828	2 " $\frac{1}{4}$ "	6 "	7 00



DISPENSING SCALE

For use with Babcock Test. Where extreme accuracy is desired samples for test should be weighed. This is the best moderate priced scale for this purpose on the market. Handsomely finished with nickel plated pans, a side beam in front of scale with sliding weight. Price includes full set of weights.

Price, No. 6—Capacity 4 oz., $3\frac{1}{4}$ in. pans, each..... \$7 00

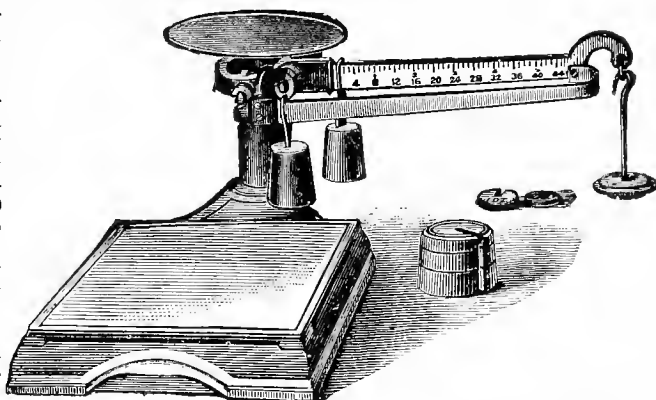
BUTTER SALTING

"ROBERTS" OR "RENNSELAER"

STEEL BEARINGS—FOR THE UNIFORM SALTING OF BUTTER

Dairymen are among the most intelligent farmers, and will appreciate a scale of this description, which can be used so readily by any one, and be the means of adding from 5 to 20 cents a pound to their productions.

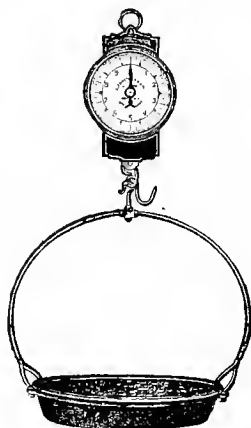
The only thing is to know how much salt to add to a pound of butter, and a child can always salt butter alike.



Neatly japanned..... \$6 00

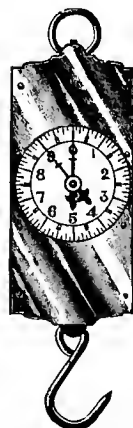
SCALES.

SPRING BALANCE.



With Agate Pan, Tinned Iron Bow and Swivel.
No. 0126, Medium, 30 lbs. by 1 oz., each ..\$10 00

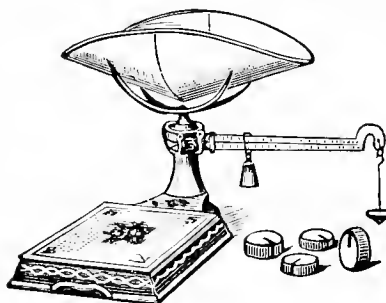
MILK SCALE.



Price, 30 lbs.\$5 00
" 60 " 7 00

UNION SCALES.

Capacity, $\frac{1}{2}$ oz. to 240 lbs.



HOWE OR FAIRBANK.

With tin scoop and single beam.....	\$14 00
" " " " double "	15 00
" brass " " single "	15 00
" " " " double "	16 00

COMMON.

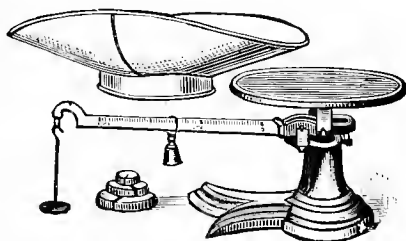
Tin scoop and single beam.....	\$5 00
" " " double "	6 00
Brass " " single "	6 00
" " " double "	7 00

LITTLE DETECTIVE SCALES.

This little scale is made with steel bearings and a brass beam and will weigh accurately any package from one-quarter of an ounce to twenty-five pounds

Nothing of the kind has ever been sold for less than \$8 or \$10.

Every scale is perfect.



Scales, without scoop, boxed, weight 10 lbs.....	each, \$3 00
With platform, tin scoop and balance weight.....	" 3 50
With platform, brass scoop and balance weight.....	" 3 75

TRUCKS AND SKIDS

PLATFORM

	Each.	With Rubbered Wheels.
No. 1, Size of platform, 3 by 2 ft.	\$14 00	\$26 00
" 2, " " 3 feet 2 inches by 2 feet 2 inches..	15 00	27 00
" 3, Size of platform, 3 feet 4 inches by 2 feet 4 inches..	16 00	28 00
" 4, Size of platform, 3 feet 6 inches by 2 feet 6 inches..	17 50	32 50
" 5, Size of platform, 3 ft. 8 in. by 2 ft. 8 in.....	18 50	33 50
" 6, Size of platform, 3 ft. 10 in. by 2 ft. 10 in.....	20 00	35 00



BUTTER OR CHEESE "NEW YORK" BUTTER "CHICAGO DAISY"



Axles turned, wheels
bored and faced.

Length of handles, 54
inches; width of frame,
16 inches; wheels, 7½x2
inches; diameter of axle,
1 inch; weight 55 pounds.

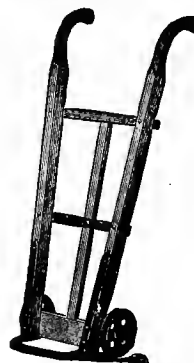
Price.....\$12 00



Axles turned and wheels
bored.

Length of handles, 54
inches; width at upper
bar, 20 inches; width at
nose, 13 inches; wheels,
9x3 inches; axle, 1 inch
square; weight, 70
pounds.

Price.....\$12 00



Half strapped, with bent
plow handles.
Axles turned and wheels
bored.

Length of handles, 46
inches; width at nose,
12 inches; width at upper
bar, 17½ inches; size of
wheels, 5¼x1¾ inches;
axle, ¾-inch square;
weight, 25 pounds.

Price.....\$5 00

Same as above, but with
sawed handles.

Price.....\$5 00

Chicago Daisy, light
pattern.

Price.....\$4 50

Bag Truck, bent handles, with stamped steel nose.....\$4 00

SKIDS



Per foot.....\$0 75

COLD ROLLED SHAFTING.

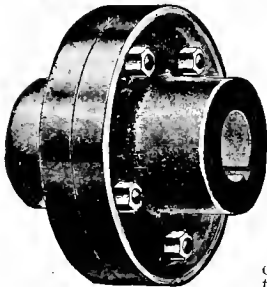
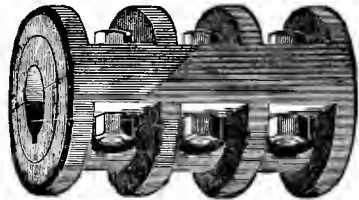


Diameter.	Approximate weight per foot.	Price per foot.	Diameter.	Approximate weight per foot.	Price per foot.
1 inch.	2 $\frac{1}{2}$ lbs.	\$0 60	1 $\frac{1}{8}$ in.	7 $\frac{1}{2}$ lbs.	\$0 87
1 $\frac{1}{8}$ "	3 $\frac{3}{4}$ lbs.	75	1 $\frac{1}{4}$ "	9 $\frac{3}{4}$ lbs.	1 05
1 $\frac{1}{4}$ "	5 $\frac{1}{2}$ lbs.	80	1 $\frac{3}{8}$ "	12 $\frac{1}{2}$ lbs.	1 25

IMPROVED COMPRESSION COUPLING.

PRICE LIST.

1 $\frac{3}{8}$	\$5 50
1 $\frac{7}{8}$	6 00
1 $\frac{1}{2}$	7 00
1 $\frac{5}{8}$	8 00
2 $\frac{1}{8}$	9 00
2 $\frac{1}{2}$	10 75
2 $\frac{3}{4}$	16 50



FLANGED FACE COUPLING.

1 $\frac{3}{8}$	\$7 75	2 $\frac{1}{8}$	\$10 50
1 $\frac{7}{8}$	8 00	2 $\frac{1}{4}$	12 50
1.....	8 50	2 $\frac{3}{8}$	15 25
1 $\frac{1}{8}$	9 00	2 $\frac{1}{2}$	18 25

SELF-OILING ADJUSTABLE BALL AND SOCKET POST HANGER.

This hanger is constructed on the same principle as all of our ball and socket hangers, and the boxes are interchangeable. The web is solid and all parts are strong and durable.

From center of shaft to post is six inches in all sizes.

PRICE LIST.

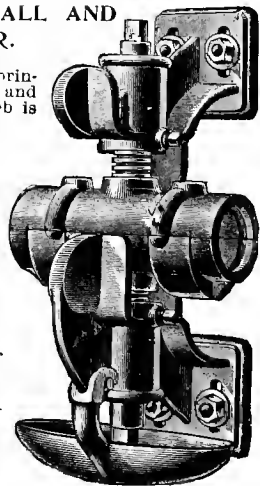
1 $\frac{3}{8}$ x 1 $\frac{1}{4}$	\$4 50	1 $\frac{1}{2}$ x 2.....	\$6 00
1 $\frac{7}{8}$ x 1 $\frac{1}{2}$	4 80	2 $\frac{1}{4}$ x 2 $\frac{1}{4}$	7 30
1 $\frac{1}{2}$ x 1 $\frac{3}{4}$	5 20	2 $\frac{3}{8}$ x 2 $\frac{1}{2}$	8 90

WOOD OR LAG SCREWS.

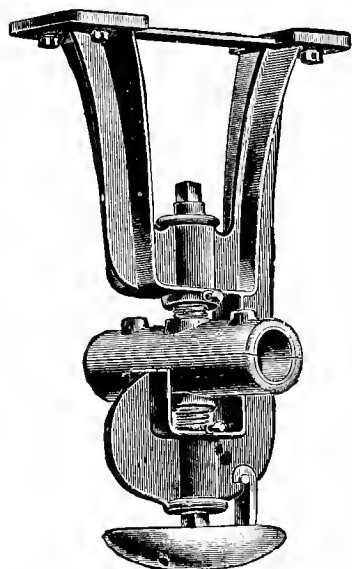
With square heads. For fastening hangers and separators.

PRICE PER DOZEN.

Length.	3 $\frac{3}{8}$	1 $\frac{1}{2}$	5 $\frac{3}{8}$	3 $\frac{3}{4}$
3	\$0 40	\$0 60	\$0 70	\$0 90
4	45	65	75	95
5	50	70	80	1 00
6	55	75	85	1 10



SELF-OILING ADJUSTABLE BALL AND SOCKET HANGER



We herewith illustrate our improved Self-Oiling Ball and Socket Drop Hanger, which has been designed with a view of correct proportions, great strength and pleasing appearance.

The box bears against the hanger frame and is prevented from turning or falling from its position while the shafting is being put up by the projection on the front of the frame.

The oil is carried from the oil receptacle to the shaft by a wick which lays in a groove in the bottom of the box, in contact with the shaft, and which extends into the oil well. This system lubricates the shaft freely and evenly.

The box is adjustable in all directions, and has a vertical adjustment of from one to three inches.

The bearings are four diameters long and lined with good babbit.

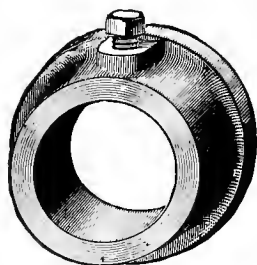
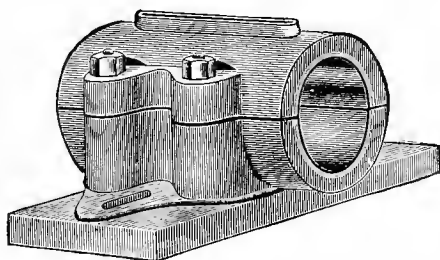
SIZES AND PRICES.

Size of Box.	Drop in Inches.					Size of Box.	Drop in Inches.				
	10	12	14	16	18		10	12	14	16	18
$1\frac{3}{16}$	\$4 40	\$4 60	\$4 90	.....	.....	$1\frac{5}{16}$	\$6 00	\$6 50	\$7 00	\$7 50	\$7 70
$1\frac{7}{16}$	4 60	4 90	5 20	\$5 80	\$6 40	$2\frac{3}{16}$	7 30	8 00	8 45	9 00	9 30
$1\frac{11}{16}$	5 10	5 50	5 90	6 25	6 50	$2\frac{7}{16}$	.....	.....	.....	.....	.....

RIGID PILLOW BLOCK.

$1\frac{3}{16}$ x $1\frac{1}{4}$	.....	\$1 60
$1\frac{7}{16}$ x $1\frac{1}{2}$	.....	2 00
$1\frac{11}{16}$ x $1\frac{3}{4}$	.....	2 50
$1\frac{15}{16}$ x 2	.....	3 10
$2\frac{3}{16}$ x $2\frac{1}{4}$	.....	3 80
$2\frac{7}{16}$ x $2\frac{1}{2}$	.....	4 60

Can furnish Ball and Socket Pillow Blocks.



COLLARS.

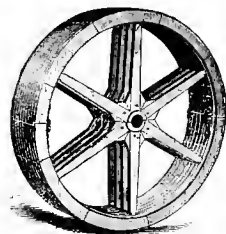
1	.....	\$0 65	$1\frac{1}{8}$	.....	\$1 40
$1\frac{3}{8}$	.....	80	$2\frac{3}{8}$	.....	1 60
$1\frac{7}{8}$	.....	1 00	$2\frac{7}{8}$	.....	1 80
$1\frac{11}{16}$	.....	1 20	$2\frac{11}{16}$	.....	2 10
$1\frac{15}{16}$	.....	1 30	$2\frac{15}{16}$	.....	2 40

WOOD SPLIT PULLEYS

The pulley is built of wooden segments, the face being made of poplar. The two halves of the pulleys are secured to the shaft with eight bolts. The bushings to fit different sized shafts are made of hardwood, thoroughly air-dried, then bored

and kiln-dried, then each bush is counter-bored to exact size of shaft, then carefully turned on the outside to fit the bore of the pulley. They are then cut transversely in halves.

We handle the very best make of wood split pulleys in the market. They never fail to give satisfaction.



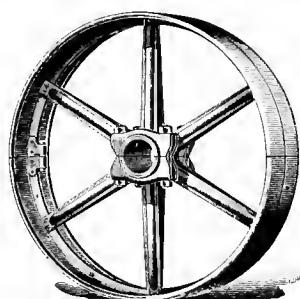
Diameter of Pulley in inches	WIDTH OF FACE IN INCHES											
	2	3	4	5	6	7	8	9	10	11	12	
3.....	\$1 80	\$1 90	\$2 00	\$2 10	\$2 25	\$2 40	\$2 55	\$2 70	\$2 85	\$3 00	\$3 20	
4.....	2 00	2 25	2 50	2 75	3 00	3 25	3 60	3 90	4 25	4 50	4 80	
5.....	2 10	2 35	2 65	3 00	3 25	3 60	3 85	4 15	4 40	4 70	5 10	
6.....	2 20	2 50	2 85	3 20	3 55	3 90	4 25	4 45	5 00	5 50	6 00	
7.....	2 30	2 60	2 90	3 30	3 70	4 20	4 70	5 25	5 75	6 25	6 60	
8.....	2 40	2 70	3 00	3 45	3 90	4 40	4 95	5 50	6 00	6 60	7 25	
9.....	2 35	2 50	2 75	3 00	3 25	3 50	3 75	4 00	4 25	4 50	5 00	
10.....	2 50	2 75	3 00	3 25	3 50	3 75	4 00	4 25	4 75	5 25	5 50	
11.....	2 60	2 85	3 10	3 30	3 60	3 90	4 25	4 50	5 00	5 50	5 75	
12.....	2 75	3 00	3 25	3 50	4 00	4 25	4 60	5 00	5 50	5 80	6 25	
13.....	3 00	3 25	3 50	3 75	4 10	4 50	5 00	5 30	5 75	6 25	6 75	
14.....	3 10	3 35	3 65	4 00	4 25	4 75	5 25	5 75	6 25	6 75	7 25	
15.....	3 25	3 45	3 85	4 20	4 55	5 00	5 65	6 10	6 70	7 25	7 75	
16.....	3 50	3 75	4 10	4 40	4 85	5 45	6 00	6 50	7 25	7 75	8 25	
17.....	3 65	3 90	4 30	4 75	5 20	5 75	6 35	6 85	7 80	8 00	8 50	
18.....	3 75	4 00	4 45	4 85	5 50	6 00	6 65	7 25	7 90	8 50	9 20	
19.....	4 00	4 30	5 00	5 40	6 25	6 75	7 25	7 75	8 50	9 00	9 75	
20.....	4 25	4 50	5 25	5 75	6 50	7 00	7 50	8 00	8 75	9 25	10 00	
21.....	4 50	4 75	5 50	6 00	6 75	7 50	8 25	9 00	9 75	10 50	11 25	
22.....	4 75	5 00	5 75	6 25	7 00	7 75	8 50	9 75	10 50	11 25	12 00	
23.....	5 00	5 25	5 85	6 50	7 25	8 00	9 00	9 75	10 50	11 50	12 25	
24.....	5 25	5 50	6 00	6 75	7 50	8 00	9 50	10 25	11 00	11 75	12 50	
25.....	5 50	6 00	6 50	7 00	7 75	8 50	9 75	11 00	11 75	12 50	13 25	
26.....	6 00	6 50	7 00	7 50	8 25	9 00	10 00	11 50	12 50	13 25	14 25	
28.....	7 00	7 50	8 00	8 50	9 50	10 50	11 50	12 50	14 25	15 25	16 25	
29.....	8 00	8 50	9 00	9 75	11 00	11 75	12 75	13 75	14 75	15 75	16 75	
30.....	8 50	9 00	9 50	10 50	11 50	12 50	13 50	14 50	15 50	16 50	17 50	
32.....			10 50	11 25	12 25	13 25	14 50	15 50	16 50	17 50	18 50	
34.....			11 25	12 00	13 00	14 25	15 50	16 75	18 00	19 25	20 50	
36.....			11 75	13 00	14 00	15 50	16 50	17 75	19 00	20 25	22 50	
40.....					16 00	17 50	19 00	20 75	22 50	24 65	26 75	
42.....					17 50	19 50	21 50	23 25	25 00	27 00	29 00	
44.....					19 50	21 65	23 75	25 65	27 50	29 50	31 50	
46.....					22 00	24 00	26 00	28 00	30 00	31 75	33 50	
48.....					24 50	26 25	28 00	30 50	32 50	34 25	36 00	

SLEEVES

BUSHINGS

For loose pulleys.....\$0 75 to \$2 25 For tight pulleys.....25 to 50 cts.

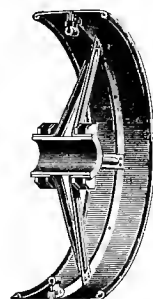
THE "ALL-WROUGHT" STEEL SPLIT PULLEY



General View

Made exclusively of "mild" sheet steel.

The Cheapest Pulley in the Market, quality and durability considered



Half of Pulley showing construction

This pulley is made exclusively of a "mild" sheet steel, accurately rolled to standard gauges, no castings or forgings entering into its make-up. The various parts are cut from sheet metal, and cold-pressed into the requisite forms by machinery especially designed for that work.

SIZES AND PRICES

DIAMETER IN INCHES	FACE IN INCHES							
	2in.	3in.	4in.	5in.	6in.	8in.	10in.	12in.
6	\$3 15	\$3 30	\$3 45	\$3 75	\$4 05	\$4 70	.....	.....
7	3 22	3 38	3 60	3 90	4 20	4 85	.....	.....
8	3 30	3 45	3 75	4 05	4 35	4 95	\$5 60	.....
9	3 38	3 60	3 90	4 20	4 50	5 10	5 75	.....
10	3 45	3 75	4 05	4 35	4 65	5 25	5 90	\$6 45
11	3 65	3 90	4 20	4 50	4 80	5 40	6 00	6 90
12	3 90	4 20	4 63	4 80	5 33	5 78	6 45	7 65
13	4 05	4 35	4 80	5 20	5 62	6 43	7 20	8 40
14	4 20	4 50	5 20	5 65	6 15	7 05	8 03	9 00
15	4 35	4 65	5 45	5 80	6 55	7 65	8 80	9 75
16	4 50	4 95	5 75	6 10	6 90	8 25	9 45	10 50
17	.....	5 25	6 00	6 50	7 28	8 78	10 05	11 25
18	.....	5 55	6 38	7 00	7 65	9 30	10 65	12 00
19	.....	5 80	6 75	7 50	8 25	10 13	11 25	12 90
20	.....	6 00	7 50	8 10	9 00	10 73	12 00	14 25
21	.....	6 25	8 00	8 90	9 60	11 25	12 98	15 60
22	.....	6 50	8 55	9 50	10 28	12 00	14 10	16 80
23	.....	7 00	8 70	9 90	10 58	12 60	14 75	18 00
24	.....	7 50	8 90	10 00	10 95	13 20	15 68	19 05

PRICES ON OTHER SIZES GIVEN ON APPLICATION

SOLID CAST IRON PULLEYS ALSO FURNISHED

PRICES ON APPLICATION

CLUTCH PULLEYS

We can furnish these either with steel rim or of wood.

Specifications and Prices Given on Application.

BELTING

"LEVIATHAN"

For use in creameries and for driving belts the Leviathan has no equal. Fifty per cent. cheaper and every belt guaranteed. It is not affected by water or steam. Try it once and you will use no other.



4-PLY		6-PLY		8-PLY		10-PLY	
INCH.	PER FT.	INCH.	PER FT.	INCH.	PER FT.	INCH.	PER FT.
* 1 1/4	\$0 11	2	\$1 24	* 4	\$0 60	12	\$2 40
* 1 1/2	13	* 2 1/2	30	* 5	75	14	2 80
* 1 3/4	15	* 3	36	* 6	90	15	3 00
* 2	18	* 3 1/2	42	* 7	1 05	16	3 20
* 2 1/4	20	* 4	48	* 8	1 20	18	3 60
* 2 1/2	23	* 4 1/2	54	* 9	1 35	20	4 00
* 2 3/4	25	* 5	60	* 10	1 50	22	4 40
* 3	27	* 6	72	* 11	1 65	24	4 80
* 3 1/2	32	* 7	84	* 12	1 80	26	5 20
* 4	36	* 8	96	* 13	1 95	28	5 60
* 4 1/2	41	* 9	1 08	* 14	2 10	30	6 00
* 5	45	* 10	1 20	* 15	2 25	36	7 20
* 5 1/2	50	* 11	1 32	* 16	2 40	40	8 00
* 6	54	* 12	1 44	17	2 55	44	8 80
* 7	63	* 13	1 56	* 18	2 70	48	9 60
* 8	72	* 14	1 68	* 20	3 00	54	10 80
* 9	81	* 15	1 80	* 22	3 30	60	12 00
* 10	90	* 16	1 92	* 24	3 60		
* 11	99	17	2 04	30	4 50		
* 12	1 08	* 18	2 16	36	5 40		
* 13	1 17	* 20	2 40	40	6 00		
* 14	1 26	* 24	2 88				
* 16	1 44						

Stock sizes marked *. Endless belts, 3 feet extra.

When sewing Leviathan belts, always use an awl instead of a punch.

OUR OFFER: To responsible parties we will send one of these belts on thirty days' trial, it to be returned if not satisfactory.

ENDLESS BELTS. We can furnish endless belts to order. Three extra feet will be charged for the splice. These endless belts are well adapted for churn belts.

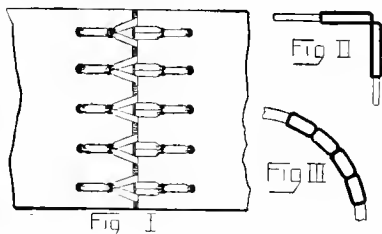
HINTS ON BELT SPLICING

"LEVIATHAN," "D. S. T.," "GANDY," LEATHER & RUBBER BELTING

Extra Strong Hinge Splice for Belting for Heavy Service

The joint may be made with lace leather, or plate hooks.

In lacing use a pointed awl, instead of a hollow punch, making holes no larger than necessary. For ordinary belts the end-to-end joint is best. The joint in heavier belts may be strengthened by placing a cap (piece of the belt) over it, fastened by lacing or hooks. Length of cap should be about the width of the belt.



The Scarfed Splice

Makes practically an endless belt. Cut the plies down in steps to match, taking care not to cut the plies under the parts removed, then sew together with waxed thread or rawhide lace lengthwise of splice.



RUBBER BELTING



INCH.	2-PLY.	3-PLY.	4-PLY.	5-PLY.	6-PLY.	7-PLY.
1	\$ 07	\$ 09	\$ 11			
1¼	09	11	13			
1½	11	13	15	\$ 19		
1¾	13	15	17	21		
2	15	17	21	26	\$ 31	
2½	18	22	26	32	39	
3	22	26	31	38	46	
3½	26	30	37	46	55	
4	30	34	42	52	63	\$ 73
4½	33	39	47	58	70	82
5	36	43	52	65	78	91
6	43	52	62	77	93	1 08
7	51	60	73	91	1 09	1 27
8	59	70	84	1 05	1 26	1 47
9	67	80	95	1 18	1 42	1 66
10	75	90	1 07	1 33	1 60	1 87
11	83	1 00	1 18	1 47	1 77	2 06
12	91	1 08	1 30	1 62	1 95	2 27
13	1 00	1 18	1 42	1 77	2 13	2 48
14	1 08	1 28	1 54	1 92	2 31	2 69
15	1 16	1 38	1 66	2 07	2 49	2 90
16	1 25	1 50	1 78	2 22	2 67	3 11
18	1 41	1 70	2 02	2 52	3 03	3 53
20	1 58	1 90	2 26	2 82	3 39	3 95

ENDLESS BELTS.—These are made to order. *Three Extra Feet* will be charged for the *Splice* subject to the regular discount.

BELT AWLS



“COMMON”

Used especially in connection with Leviathan Belt. Very strong and durable.

Price.....each, \$0 45

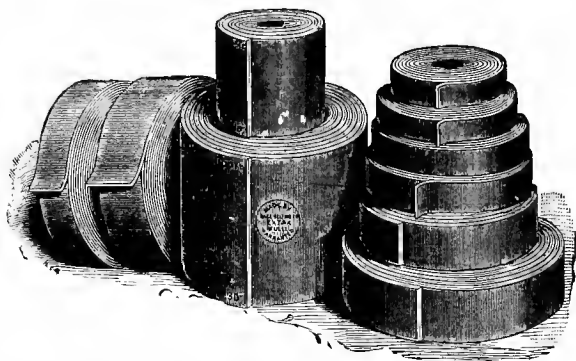
“LOTHROP’S” PATENT

A GREAT CONVENIENCE FOR LACING BELTS

Price.....each, \$0 75



BELTING: LEATHER AND RAWHIDE.



"EXTRA SHORT" LAP AND "CHICAGO" LEATHER BELTING.

$\frac{1}{2}$ in. wide, per ft. \$0 08	$\frac{5}{8}$ in. wide, per ft. \$1 01	23 in. wide, per ft. \$ 4 26
$\frac{3}{8}$ " " " " 10	6 " " " " 1 11	24 " " " " 4 44
$\frac{3}{4}$ " " " " 12	$6\frac{1}{2}$ " " " " 1 20	25 " " " " 4 63
$\frac{7}{8}$ " " " " 13	7 " " " " 1 30	26 " " " " 4 81
1 " " " " 14	8 " " " " 1 48	27 " " " " 5 00
$1\frac{1}{4}$ " " " " 19	9 " " " " 1 67	28 " " " " 5 18
$1\frac{1}{2}$ " " " " 24	10 " " " " 1 85	30 " " " " 5 55
$1\frac{3}{4}$ " " " " 29	11 " " " " 2 04	32 " " " " 5 92
2 " " " " 34	12 " " " " 2 22	34 " " " " 6 29
$2\frac{1}{4}$ " " " " 39	13 " " " " 2 41	36 " " " " 6 66
$2\frac{1}{2}$ " " " " 43	14 " " " " 2 59	40 " " " " 7 40
$2\frac{3}{4}$ " " " " 48	15 " " " " 2 78	44 " " " " 8 14
3 " " " " 53	16 " " " " 2 96	48 " " " " 8 88
$3\frac{1}{4}$ " " " " 58	17 " " " " 3 15	52 " " " " 9 62
$3\frac{1}{2}$ " " " " 63	18 " " " " 3 33	56 " " " " 10 36
$3\frac{3}{4}$ " " " " 67	19 " " " " 3 52	60 " " " " 11 10
4 " " " " 72	20 " " " " 3 70	64 " " " " 11 84
$4\frac{1}{2}$ " " " " 82	21 " " " " 3 89	68 " " " " 12 58
5 " " " " 91	22 " " " " 4 07	72 " " " " 13 32

DOUBLE BELTING, DOUBLE LIST.

RAWHIDE BELTING—Same List as above.

RAWHIDE ROPE.

$\frac{1}{4}$ in. diam., per ft. \$0 18	$\frac{7}{16}$ in. diam., per ft. \$0 27	$\frac{3}{4}$ in. diam., per ft. \$0 46
$\frac{5}{16}$ " " " " 21	$\frac{1}{2}$ " " " " 30	$\frac{7}{8}$ " " " " 60
$\frac{3}{8}$ " " " " 24	$\frac{5}{8}$ " " " " 36	1 " " " " 72

ROUND BELTING AND RAWHIDE ROPE.

Solid.	Twist.	Solid.	Twist.	
$\frac{1}{8}$ in. diam. \$0 07	\$0 08	$\frac{5}{16}$ in. diam. \$0 18	\$0 22	$\frac{1}{2}$ " " \$0 38
$\frac{3}{16}$ " " 09	12	$\frac{3}{8}$ " " 24	27	$\frac{5}{8}$ in. diam. 48
$\frac{1}{4}$ " " 14	17			$\frac{3}{4}$ " " 60
				$\frac{7}{8}$ " " 80
				1 " " 96

For double rawhide belting, the
list price will be doubled.



GIANT BELT PASTE

Price, 5-lb. boxes, per lb.	\$0 30
" 10-lb. " " "	25

Rules for Calculating the Speed of Pulleys.

The diameter of the driven being given, to find its number of revolutions:

RULE—Multiply the diameter of the driver by the number of its revolutions, and divide the product by the diameter of the driven, the quotient will be the number of revolutions of the driven.

The diameter and revolutions of driver being given, to find the diameter of the driven that shall make any given number of revolutions in the same time:

RULE—Multiply the diameter of the driver by its number of revolutions and divide the product by the number of revolutions of the driven; the quotient will be the diameter.

To ascertain the size of the driver:

RULE—Multiply the diameter of the driven by the number of revolutions you wish to make, and divide the product by the revolutions of the driver; the quotient will be the diameter of the driver.

Examples.

A 30 inch pulley making 180 revolutions per minute, drives a counter-shaft with a 12 inch pulley. What is the speed of the latter?

180×30 , divided by 12, = 450 revolutions per minute.

A counter-shaft is to make 450 revolutions per minute, driven by a 30 inch pulley making 180 revolutions per minute. What will be the diameter of counter-shaft pulley?

180×30 , divided by 450, = 12 inches.

What will be the diameter of a pulley making 180 revolutions per minute, to drive a 12 inch pulley 450 per minute?

450×12 , divided by 180, = 30 inch pulley

In calculating toothed gears, substitute the number of teeth for the diameters, and proceed as above.

Rule for Finding the Length of Belts.

Add the diameter of the two pulleys together, multiply by $3\frac{1}{8}$, divide the product by 2, add to the quotient twice the distance between the center of the shafts, and the product will be the required length.

Rule for Calculating the Power of Belting.

One inch single belt moving at a velocity of 1,000 feet per minute = one horse power.

One inch double belt moving 700 feet per minute = one horse power.

Horse power of any belt equals its velocity in feet per minute, multiplied by its width and divided by 1,000, for single, and by 700 for double belts

BELT PUNCHES

"PATENT"

The best, cheapest and most convenient punch



The tubes are detachable and any size can be used with the punch handle.

Price, Handle and one size Tube only, complete.....	\$1 00
Extra Tubes, each.....	35

Always order Tubes by number.

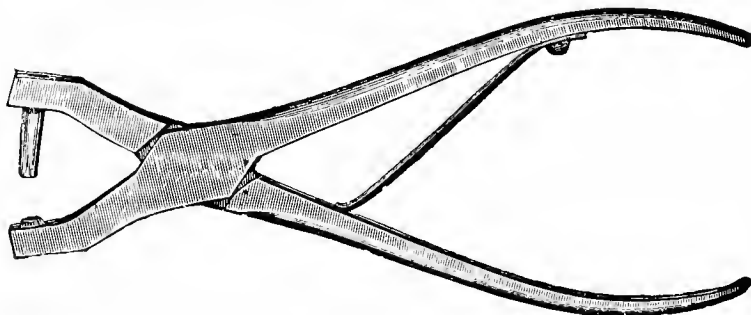
COMMON ROUND



Nos. 5, 7 and 9, cast steel, drilled, reamed and oil tempered, each.....	\$0 25
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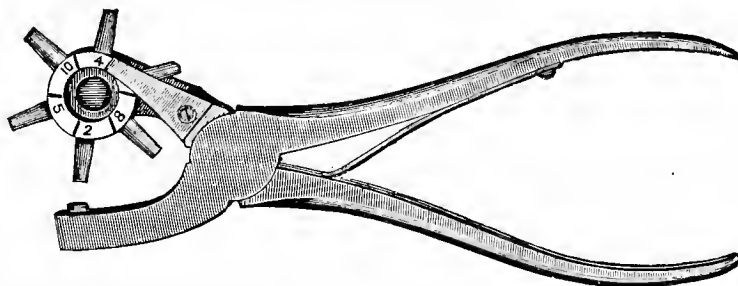
Always state number in ordering.

"SPRING"



6-inch, each.....	\$0 50
-------------------	--------

"REVOLVING SPRING"



Extra cast steel, with four tubes, each.....	\$1 00
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ELLIOT'S LACE CUTTERS



Price, each.....\$0 50 | Extra knives, each.....\$0 15

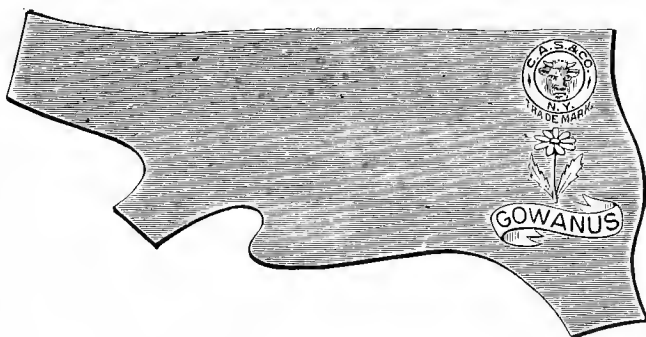
RAWHIDE LACE LEATHER

Our rawhide lace leather is unexcelled in color and finish, and is very tough, retaining its strength even after being on hand for a long time. Every side is marked plainly with the number of square feet that it contains, and stamped with our trade mark.

None genuine without it

PRICE

Best quality rawhide, per square foot \$0 30



LACING CUT RAWHIDE

Of the best quality.



Cut Lace in packages of 100 feet.

$\frac{1}{4}$ -inch wide, per 100 feet.....\$0 75	$\frac{1}{2}$ -inch wide, per 100 feet.....\$1 40
$\frac{5}{8}$ " " " 100 " 85	$\frac{5}{8}$ " " " 100 " 1 75
$\frac{3}{4}$ " " " 100 " 1 00	$\frac{3}{4}$ " " " 100 " 2 00

Wach's, $\frac{1}{8}$ -inch wide, for sewing "D. W." and other flat separator belts, per 100 feet..... 70

BRISTOL STEEL

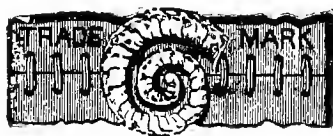


READY TO APPLY FINISHED JOINT

Packed 100 inches in a box, assorted lengths.

No.	Per box.
0 For split and light leather belts.....	\$1.00
1 " ordinary single "	1.50
2 " extra heavy & wide single leather belts.....	2.00
3 " light double leather belts	2.50
4 " heavy " "	3.00
10 " 2-ply rubber and cotton belts.....	1.10
11 " 3 " " "	1.65
12 " 4 " " "	2.20
13 " 5 " " "	2.75
14 " 6 " " "	3.30

KERR'S METALLIC



SIZES

No. 0.....	sews 1 to $2\frac{1}{2}$ in. belt
" 1	" 2 " 5 " "
" 2	" 5 " 12 " "
" 3	" 8 " 24 " "

Per foot, net.....\$0 02

Awls for same, net 85

In ordering, always give number size wanted.

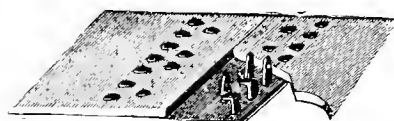
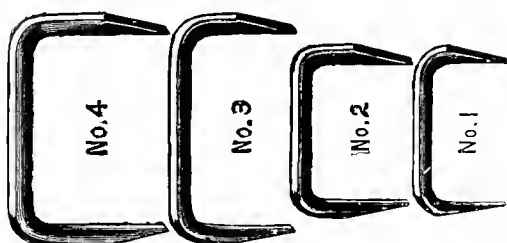
BELT HOOKS, FASTENERS AND STUDS

"COVEL" HOOKS

PRICES

No. 1, per 1,000	\$1 75
" 2, "	2 00
" 3, "	2 25
" 4, "	2 50
" 5, "	2 75

Put up 200 in a box.



"THACHER" PATENT BELT FASTENER

MAKES A CONTINUOUS BELT

FOR SINGLE LEATHER

	Per 100
No. 1, for 1-inch Belts	\$1 50
" 2, " 1½ "	2 00
" 3, " 2 "	2 50
" 4, " 2½ "	3 00
" 5, " 3 "	3 50
" 6, " 3½ "	4 50
" 7, " 4 "	5 50

FOR DOUBLE LEATHER OR 3 AND 4-PLY RUBBER

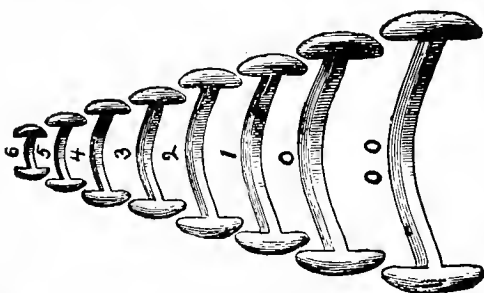
	Per 100
No. 8, for 2-inch Belts	\$5 00
" 9, " 2½ "	6 50
" 10, " 3 "	7 50
" 11, " 3½ "	8 50
" 12, " 4 "	9 50

In ordering please state width of Belts. Two or more Hooks used on wider Belts.
Put up in boxes of 50 and 100 each.

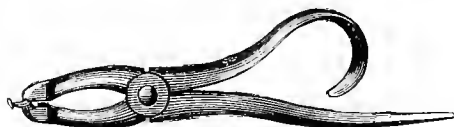
"BLAKE'S" PATENT BELT STUDS

Packed in boxes of 100 each; directions on the box. No. 0 for the heaviest double leather or five and six-ply rubber belt. No. 6 for the thinnest sewing machine belt, which needs to run very smooth. Intermediate sizes in proportion.

No.	6	5	4	3
Per box	\$0 60	70	80	90
No.	2	1	0	
Per box	\$1 25	1 65	2 00	



Put up 100 in a box

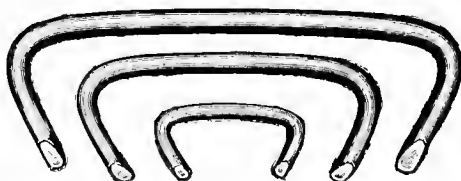


PLIERS AND AWL COMBINED TO BE USED IN CONNECTION WITH THE "BLAKE'S" STUDS

Price.....each, \$0 50

"JONES'" IMPROVED POINT- ED BELT HOOKS

No.	15, per 1000, \$2 00	No.	10, per 1000, \$3 50
14, "	2 40	9, "	4 00
13, "	2 60	8, "	5 00
12, "	2 80	7, "	6 00
11, "	3 00	6, "	8 50



HOSE



STEAM

CONDUCTING

Internal Diam.	3-ply	4-ply	5-ply	Internal Diam.	2-ply	3-ply	4-ply	5-ply
$\frac{1}{2}$ inch.....	\$0 43	\$0 51	\$0 63	$\frac{1}{2}$ inch.....	\$0 20	\$0 25	\$0 30	.....
$\frac{3}{4}$ ".....	51	67	83	$\frac{3}{4}$ ".....	30	37	40	\$0 63
1 ".....	65	83	1 03	1 ".....	40	50	62	78
$1\frac{1}{4}$ ".....	87	1 04	1 20	$1\frac{1}{4}$ ".....	50	60	75	94
$1\frac{1}{2}$ ".....	1 02	1 25	1 56	$1\frac{1}{2}$ ".....	60	75	94	1 25
$1\frac{3}{4}$ ".....	1 18	1 45	1 81	2 ".....	80	1 00	1 25	1 37
2 ".....	1 34	1 66	2 07	$2\frac{1}{2}$ ".....	1 00	1 25	1 37	.....



CLINCH GRIP.

Winding Conducting Hose with "Clinch Grip" Round Steel Wire

Prevents expansion and adds greatly to the strength of the hose

PRICE FOR WINDING

	3-ply	4-ply	5-ply	6-ply		3-ply	4-ply	5-ply	6-ply
$\frac{1}{2}$ inch per ft.	\$0 03	\$0 04	\$0 05	\$0 06	$\frac{1}{2}$ inch per ft.	\$0 09	\$0 10	\$0 11	\$0 12
$\frac{3}{4}$ ".....	04	05	06	07	$\frac{3}{4}$ ".....	10	11	12	13
1 ".....	05	07	08	09	$1\frac{1}{4}$ ".....	11	12	13	14
$1\frac{1}{4}$ ".....	07	08	09	10	$1\frac{1}{2}$ ".....	12	13	14	15
$1\frac{1}{2}$ ".....	08	09	10	11	$2\frac{1}{2}$ ".....	13	14	15	16

HARD RUBBER SUCTION

This hose is intended for pumps. It will not collapse, and will be found a reliable, low-priced article.

Int. diam.	Per ft.	Int. diam.	Per ft.	Int. diam.	Per ft.	Int. diam.	Per ft.
$\frac{3}{4}$ inch.....	\$0 65	$1\frac{1}{4}$ inch.....	\$0 93	$1\frac{1}{2}$ inch.....	\$1 31	$2\frac{1}{4}$ inch.....	\$1 69
1 ".....	75	$1\frac{1}{2}$ ".....	1 13	2 ".....	1 50	$2\frac{1}{2}$ ".....	1 88

INSERTED WIRE SUCTION

Same list as Hard Rubber Suction Hose

COTTON GARDEN, RUBBER LINED

"Plain Cotton," "Paramount" and "Black Line."

$\frac{1}{2}$ inch.....	per foot, \$.....	$1\frac{1}{4}$ inch.....	per foot, \$.....
$\frac{3}{4}$ ".....	".....	$1\frac{1}{2}$ ".....	".....
1 ".....	".....		

Prices for this hose will be furnished on application.

HOSE FITTINGS

HOSE PIPE WITH SCREW TIP



Size, inches.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Length.....	$7\frac{1}{2}$	$8\frac{1}{2}$	11	13	20
Price.....	\$ 70	85	1 65	2 10	4 20

HOSE PIPE WITH COCK



Size, inches.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Length.....	$6\frac{3}{4}$	$9\frac{1}{2}$	20	$22\frac{1}{2}$
Price.....	\$0 90	1 65	4 60	7 00

Iron pipe thread and special lengths, extra.

HOSE NOZZLE



Size, inches.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Length to screw, inches.....	4	4	$4\frac{3}{4}$	$5\frac{3}{4}$	$6\frac{3}{4}$
Length to wind, inches.....	$5\frac{1}{2}$	6	$6\frac{3}{8}$	....	....
Hose pipe thread, each.....	\$0 35	40	1 00	1 50	2 20
Iron " " ".....	40	55	1 15	1 65	2 40
To wind, each.....	35	40	1 00	....	....

HOSE COUPLINGS (Brass)



Size, inches.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price.....	\$0 20	35	85	1 15	2 00

HOSE CAPS



Size, inches.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Price each.....	\$0 35	50	65	85	1 25	2 00	2 60	3 25	3 60

HOSE FITTINGS

NIPPLES

Size, inches.....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, each.....	\$0 30	\$0 30	\$0 45	\$0 75	\$0 85	\$1 15



CLAMPS



Size, inches....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price, each....	\$0 15	\$0 15	\$0 20	\$0 25	\$0 30	\$0 40	\$0 60

MALLEABLE CLEVIS



Price, each \$0 50

SPRINKLER



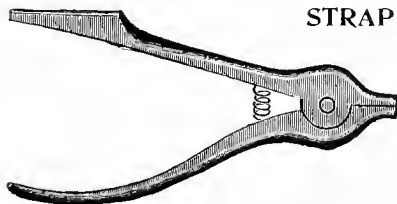
Size, inches.....	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, each.....	\$0 40	\$0 50	\$1 25	\$1 75	\$2 50

STRAPS

No. 2,	$\frac{1}{2}$ inch,	$3\frac{3}{8}$ inches long,	per doz.....	\$0 40	
" 4,	$\frac{1}{2}$ "	$3\frac{3}{4}$ "	" " " "	40	
" 6,	$\frac{3}{4}$ "	$4\frac{1}{8}$ "	" " " "	60	
" 8,	$\frac{3}{4}$ "	$4\frac{3}{4}$ "	" " " "	60	
" 10,	1 "	5 "	" " " "	80	
" 12,	1 "	$5\frac{3}{8}$ "	" " " "	80	
" 14,	$1\frac{1}{4}$ "	6 "	" " " "		\$1 00
" 16,	$1\frac{1}{4}$ "	$6\frac{3}{8}$ "	" " " "		1 00
" 18,	$1\frac{1}{2}$ "	$6\frac{3}{4}$ "	" " " "		1 20
" 20,	$1\frac{1}{2}$ "	$7\frac{1}{8}$ "	" " " "		1 20
" 22,	$1\frac{3}{4}$ "	$7\frac{1}{2}$ "	" " " "		1 40
" 24,	$1\frac{3}{4}$ "	8 "	" " " "		1 40



STRAP FASTENERS



Price, $\frac{1}{2}$ to 1 inch.....\$0 50
 " $\frac{1}{2}$ " $2\frac{1}{2}$ " 75

MENDER

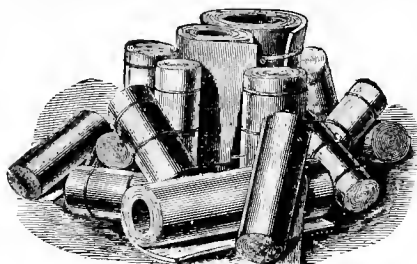


Size, inches	Price per dozen
$\frac{1}{2}$ and $\frac{3}{4}$ inch	\$0 60
1 inch	75

PACKING

"CLOTH INSERTION"

Cloth on one or both sides. This article is now considered indispensable by engineers and machinists wherever steam, air or water joints are to be made, as no substance has so much elasticity and stands so high a degree of heat.



Thickness, in.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
1-ply, per lb.	\$0 70	\$0 65	\$0 60	\$0 55
2 " "	.....	.....	63	58
3 " "	.....	.....	.....	61
4 " "	.....	.....	.....	.....
Thickness, in.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	.....
1-ply, per lb.	.....	.....	.....	.....
2 " "	\$0 55	.....	.....	.....
3 " "	58	\$0 55	.....	.....
4 " "	61	58	\$0 55	.....

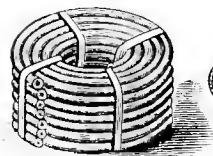
"RAINBOW" SHEET

Price, per lb. \$0 80
Made in the following thicknesses: $\frac{1}{32}$, $\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{5}{16}$ and $\frac{1}{4}$ -inch

"JENKINS' " SHEET

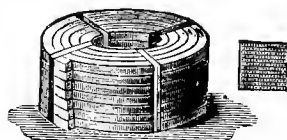
Price, per lb. \$0 80
Made in the following thicknesses: $\frac{1}{32}$, $\frac{1}{16}$, $\frac{3}{32}$, $\frac{1}{8}$, $\frac{5}{16}$ and $\frac{1}{4}$ -inch

PISTON



ROUND

Round Empire Gum Core, $\frac{1}{4}$ to $\frac{1}{2}$ in. Per lb. \$0 50
Selden's $\frac{1}{4}$ inch and larger. Per lb. 60
Jenkins' Square Manhattan. Per lb. 1 00
Square Duck with rubber back. Per lb. 80
Square Flax. Per lb. 40



SQUARE

HEMP

Best Italian, per lb. \$0 20

ASBESTOS WICK

In $\frac{1}{4}$, $\frac{1}{2}$ and 1 lb. balls, per lb. \$0 60

CANDLE WICKING

Per lb. \$0 25 Per ball. \$0 05



SPIRAL

GARLOCK

For any size of Piston; and Box

Per lb. \$1 20



ELASTIC RING

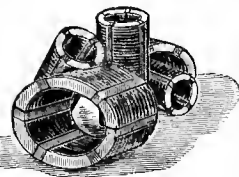
In ordering "Spiral" packing give exact space between rod and stuffing box. Sold in full boxes only. Weight, per box, $\frac{3}{4}$ lb. for $\frac{1}{8}$ -inch to $3\frac{1}{4}$ lbs. for $\frac{5}{8}$ -inch. In ordering "Elastic Ring" packing be very careful in taking measurements. With a pair of calipers take the exact diameter of rod, also diameter of stuffing box. These measurements must be very exact, even to one sixty-fourth of an inch, otherwise we cannot give you an exact fit. "Elastic Ring" packing is all cut to order, so can furnish any size wanted from $\frac{1}{8}$ to 50 inches diameter.

GASKETS AND RINGS

CLOTH INSERTION

There is one ply of cloth to every 1-16 inch thickness.

Regular shapes and sizes, per lb. \$1 00



"ECLIPSE" GASKET TUBING

Made in any size. The user cuts off length required and inserts metal tube to join the ends Very convenient.

Price, per lb. \$0 80



COTTON WASTE.

PRICES.

	100 lb. bales.	Small lots.
White, best machine cop. per lb.,	\$0 05½	\$0 09
Colored, extra fine..... "	07	07½

BABBITT.

FRICITIONLESS.



This is an eminently superior bearing Metal.
About 5 pounds to the Cake.

PRICES.

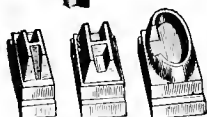
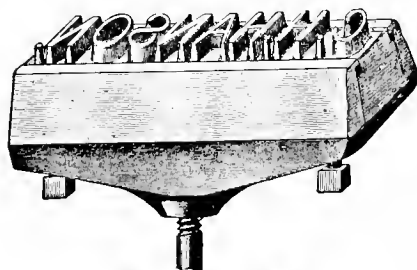
In 20 lb. boxes.....	per lb. \$0 ..
In small lots	" ..

BABBITT LADLES.



Diameter	inches.	2½	3	3½	4	5	6
Price.....		\$0.30	.35	.40	.50	.70	.86

HANSON'S IMPROVED BURNING BRAND



Handle 16 inches long.

For marking export Boxes, Barrels, Kegs, Tubs and wooden articles of every description, as also Horses and Cattle.

BRANDS WITH NAME, COMPLETE

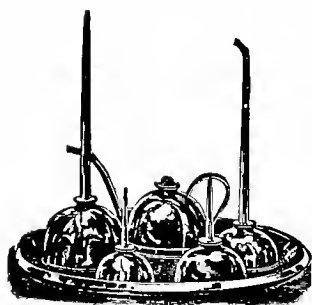
	¼ in.	⅜ in.	½ in.
Brands of 4 letters.....	\$1.00	\$1.00	\$1.00
" " 5 "	1.15	1.20	1.25
" " 6 "	1.30	1.40	1.50
" " 7 "	1.45	1.60	1.75
" " 8 "	1.60	1.80	2.00
" " 9 "	1.75	2.00	2.25
" " 10 "	1.90	2.20	2.50
" " 11 "	2.05	2.40	2.75
" " 12 "	2.20	2.60	3.00
" " 13 "	2.35	2.80	3.25
" " 14 "	2.50	3.00	3.50
" " 15 "	2.65	3.20	3.75

SINGLE LETTERS

¼ in., each, 8c. | ⅜ in., each, 9c. | ½ in., each, 10c.
Solid Iron Brands, 45c. per lb. 25c. per letter.
Solid Copper Brands, 40c. per lb. 25c. per letter.

OIL CANS

ENGINEER'S SETS—Single Bottom Trays



These goods are all heavy brass nicely finished. These sets are not only very convenient and serviceable, but present a handsome appearance in an engine room. They are cheap, substantial and elegant.

Number polished brass	List price per set	Number of pieces in a set	Number nickel-plated finish	List price per set
30	\$6 00	5	50	\$ 8 00
40	9 00	6	60	11 00

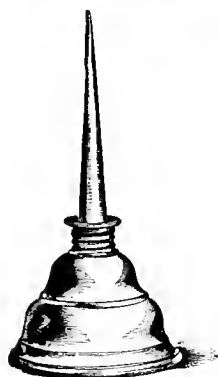
SPUN ZINC

No.	Diameter of bottoms, inches	Price, Tin bottoms	Price, Brass bottoms
1	2 $\frac{3}{8}$	\$0 15	\$0 20
2	3 $\frac{1}{4}$	20	25
3	3 $\frac{3}{4}$	25	30
4	4 $\frac{1}{4}$	30	35
5	4 $\frac{1}{2}$	35	40

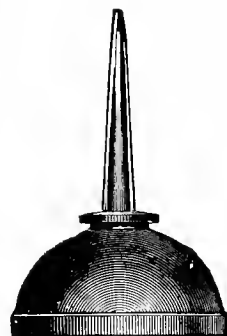
STEEL

With brazed steel bottoms and cold-rolled tubes. Copperized finished.

No.	Diameter of bottom, inches	Price
12	2 $\frac{3}{4}$	\$0 40
13	3 $\frac{3}{8}$	50
14	3 $\frac{3}{4}$	55
15	4 $\frac{1}{4}$	80
16	4 $\frac{3}{4}$	90



Zinc.



Steel.

OIL CUPS

"POWELL" SIGHT FEED

PRICES

No.	00	0	1	1 $\frac{1}{2}$	2	3	4	5	6
Outside Diameter of glass, inches.....	1 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$
Pipe thread	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
Finished brass	1 25	1 50	1 75	2 10	2 55	3 15	3 90	4 80	5 30
Nickel-plated	1 40	1 70	2 00	2 35	2 85	3 50	4 30	5 30	6 30
Extra glasses, net.....	06	08	10	10	12	15	25	35	65

PLAIN



Diameter of body, inches	Size, iron pipe, inches	Price, each
$\frac{3}{4}$	$\frac{1}{8}$	\$ 0 30
$\frac{7}{8}$	$\frac{1}{8}$	35
1	$\frac{1}{4}$	40
1 $\frac{1}{8}$	$\frac{1}{4}$	50
1 $\frac{1}{4}$	$\frac{1}{4}$	60
1 $\frac{1}{2}$	$\frac{3}{8}$	90
1 $\frac{3}{4}$	$\frac{3}{8}$	1 25
2	$\frac{3}{8}$	1 75





OILS

Poor oils are expensive, dangerous, worthless, cost too much at any price. Our oils are compounded with great care and are the best that can be produced. You will save repair bills by using the best, and if you get your oils from us you will be sure to have the best. We guarantee each and every gallon.

PRICE

World's Fair Separator, single gallons.....	per gallon, \$.....	
“ “ “ 5-gallon cans.....	“ “	
“ “ “ 10 “ “.....	“ “	
“ “ “ barrel lots.....	“ “	
Imperial Separator, single gallons.....	“ “	
“ “ “ 5-gallon cans.....	“ “	
“ “ “ 10 “ “.....	“ “	
“ “ “ barrel lots.....	“ “	
Reliance Engine, single gallons.....	“ “	
“ “ “ 5-gallon cans.....	“ “	
“ “ “ 10 “ “.....	“ “	
“ “ “ barrel lots.....	“ “	
Extra Castor, single gallons.....	“ “	
“ “ “ 5-gallon cans.....	“ “	
“ “ “ 10 “ “.....	“ “	
“ “ “ barrel lots.....	“ “	
Tiger Cylinder, single gallons.....	“ “	
“ “ “ 5-gal. cans, per gal., \$....	Zero for Refrig'r Mach'y, single gal., \$....	
“ “ “ 10 “ “.....	“ “ “ 5-gal. cans “.....	
“ “ “ barrel lots. “ “.....	“ “ “ 10 “ “.....	
	“ “ “ barrel lots, “.....	

For Prices see our Monthly Price Current

Lard oil and linseed oil at market prices

Try one Gallon or a Barrel of any of the above Oils. We send any Grade on Trial.

OIL CANS WITH PUMP

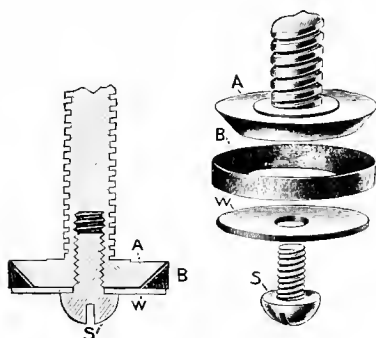
The cheapest pump tank in the market. Made of **best quality of galvanized iron** in body and bottom; wood bottom under the metal; painted and ornamented; pump used for transferring oil from barrels. A very neat and serviceable article for storage of oils or butter colors.

SIZES AND PRICES

30-gallon, with pump.....	\$5 00
60 “ “ “.....	6 50
Pump, if separate.....	1 50



THE "MOON" AUTOMATIC GREASE CUP.



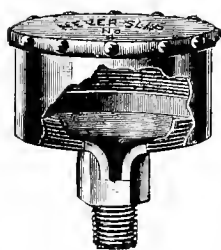
Sectional View of Plunger and Washer.

The excellent features of this cup cannot fail to recommend it at once. It has a beveled leather washer which insures a tight joint and smooth working. The washer can be expanded by the adjusting screw on bottom of plunger. The spring and plunger are controlled by the thumb nut on top of cup, which will not jar from position. The rate of feed is regulated by screw "C."

TO OPERATE—Turn thumb nut down until plunger is drawn up to the cover, then unscrew cover and fill cup with grease; replace cover, turn thumb nut up the distance you desire plunger to go while feeding. To stop feeding, have thumb nut on top of cover.

PRICE LIST.

Number of Cup	0	1	2	3	4	5
Diameter.....inches	1	1½	2	2½	3	3½
Height over all....."	2¾	3⅜	4⅜	4¾	6¼	8
Pipe Thread	1⅛	1¼	1½	1¾	2	2½
Capacity.....ounces	1⅓	1	1½	2½	5	6½
Finished Brass.....each	1 50	2 00	2 50	3 20	4 30	5 50
Finished Nickeled....."	1 75	2 40	3 00	3 60	5 00	6 20



The "Neverslip."

THE "STAR" AND "NEVERSLIP" GREASE CUPS.

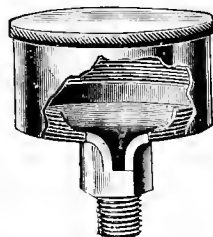
Lightest and Strongest Cup Made.

Can be Used on all Machinery.

A Trial will Convince You.

PRICE LIST.

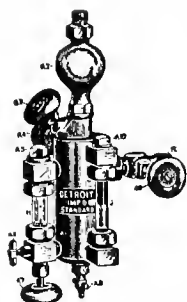
Number of Cup	1	2	3	4	5	6	7
Diameter.....inches	1⅛	1½	1¾	2½	2¾	3	3½
Height....."	1½	1¾	2	2½	2¾	4¾	6¼
Pipe Thread	1⅛	1¼	1½	1¾	2	2½	3
Finished Brass... each	70	90	1 15	1 50	2 15	2 90	4 80
Finished Nickeled ..	90	1 05	1 35	1 80	2 60	3 50	5 00
Rough....."	40	80	1 05	1 35	1 80	2 80	4 25



The "Star."

CUP GREASE, per pound, 15 cents.

THE "DETROIT" IMPROVED STANDARD LUBRICATOR FOR STATIONARY ENGINES



DOUBLE CONNECTION.

This Lubricator is intended especially for the better classes of engines, and represents the very highest development in its line. It is the most convenient, most durable and most reliable sight-feed lubricator made.

Among the Improvements it possesses are the following:

1. The support arm is in two parts. The part containing the globe valve is first screwed into the steam-pipe, and the lubricator is then coupled to it. This makes the attachment very easy, and, on account of the globe valve, the lubricator proper can be removed at any time, for repairs or otherwise, without letting down steam.
2. The heating passage from the upper sight-feed arm to the support arm passes directly through the body of the lubricator, and, being always filled with steam, it keeps the oil constantly warm and in a thoroughly liquid condition. This lubricator is particularly well adapted for feeding heavy oils.
3. There is a drain stem under the sight-feed glass, which allows the water to be drained out and the glass cleaned at any time.
4. The oil is poured directly into the body in the pint and larger sizes, doing away with the necessity of a vent.
5. The sight-feed and gauge glasses are inserted through the upper arms.
6. The sight-feed glass and the valve regulating the feed are on the opposite side from the steam-pipe.

SIZES AND PRICES

With Double Connection

Size.	Plain Brass.	Nickel-Plated.	Suitable for engine with diam. of cylinder as follows:
One-third pint..	\$17 00	\$20 00	Up to 18 inches.
Half-pint.....	22 00	25 00	8 to 10 "
Pint.....	30 00	35 00	10 to 18 "
Quart.....	45 00	50 00	18 to 30 "
Half-gallon.....	60 00	65 00	30 and over.
Gallon.....	75 00	80 00	.....

With Single Connection

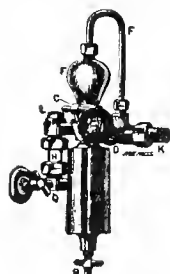
Size.	Plain Brass.	Nickel-Plated.	Suitable for engine with diam. of cylinder as follows:
One-fourth pint.	\$15 00	\$18 00	Up to 6 inches.
One-third pint..	17 00	20 00	6 to 8 "
One-half pint..	20 00	23 00	8 to 10 "

LUBRICATOR GLASSES

We carry in stock $\frac{5}{8}$ and $\frac{3}{4}$ glass tubing. As glasses vary in size and length, according to style and size, it will be necessary to give exact outside diameter and length when ordering.

Gaskets always sent with glasses.

Price, each, with gaskets\$0 20



SINGLE CONNECTION

SWIFT LUBRICATOR

CLASS G. SINGLE OR DOUBLE CONNECTION

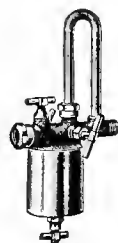
This style of Lubricator has been placed upon the market in answer to the request of many builders of portable and traction engines, steam pumps, etc., who desire a sight-feed cup that shall be low in price and at the same time reliable in its action.

Correct in principle, positive in operation, elegant in design and finish, it is certainly desirable for such uses.

PRICE LIST, CLASS G

Capacity, One-eighth pint.....	Brass Finish.	\$2 50	Nickel-plated.	\$3 00
" One-quarter pint.....	"	3 00	"	3 50
" One-third pint.....	"	3 75	"	4 25
" One-half pint.....	"	4 50	"	5 00

We can furnish extras for any style of Lubricator.



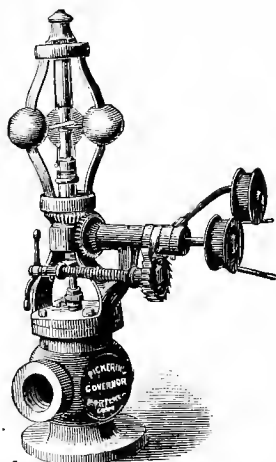
STEAM ENGINE GOVERNORS

(PICKERING, GARDNER, WATERS OR JUDSON)

Size of Governor or Diameter of Steam Pipe in inches.	Class B.		Class A.	
	Plain.	Finished	Plain.	Finished
$\frac{1}{2}$	\$16 00	\$18 00	.....	.....
$\frac{3}{4}$	18 00	20 00	.....	.....
1.....	20 00	22 00	\$23 00	\$25 00
1 $\frac{1}{4}$	22 00	25 00	25 60	28 50
1 $\frac{1}{2}$	25 00	29 00	29 50	33 50
2.....	30 00	34 00	36 00	40 00
2 $\frac{1}{4}$	35 00	40 00	42 00	47 00
2 $\frac{1}{2}$	40 00	45 00	48 00	53 00
3.....	50 00	58 00	59 00	67 00
3 $\frac{1}{2}$	60 00	69 00	71 00	80 00

Class "B" with speeder only. Class "A" with speeder and stop motion.

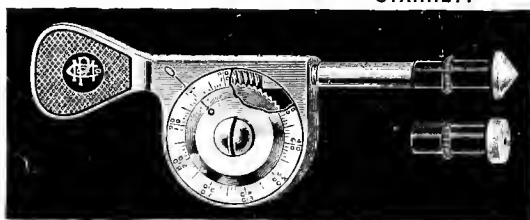
In ordering, state whether bottom connections are screwed or flanged; speed of engine, diameter of governor belt pulley on main shaft.



Class "A," Pickering

SPEED INDICATOR

STARRETT

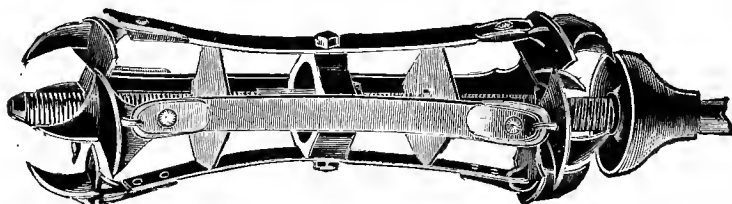


Can be carried in the pocket; is nicely finished and above all, is accurate.

To ascertain the number of revolutions of any shaft in a given time, place the point of the indicator in the center of the shaft; for every 100 revolutions the dial will revolve once.

Price.....\$1 00

ENGINEERS' "FAVORITE" FLUE SCRAPER

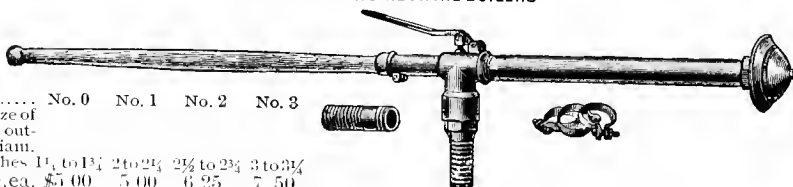


Outside diam. of tubes inches,
Price of flue scraper.....each,

$\frac{1}{4}$ 2 $\frac{3}{4}$ $\frac{2}{4}$ $\frac{2}{4}$ 3 $\frac{3}{4}$
\$2 00 2 00 2 25 2 50 2 75 3 00 3 25

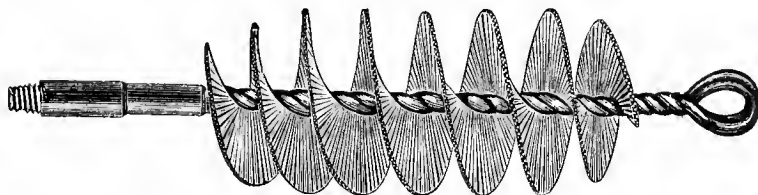
STEAM FLUE CLEANERS

FOR UPRIGHT OR HORIZONTAL BOILERS



Size..... No. 0 No. 1 No. 2 No. 3
For size of
tube, out-
side diam.
in inches $1\frac{1}{4}$ to $1\frac{3}{4}$ $2\frac{1}{4}$ to $2\frac{3}{4}$ $2\frac{3}{4}$ to $3\frac{1}{4}$ $3\frac{1}{4}$ to $3\frac{3}{4}$
Price, ea, \$5 00 5 00 6 25 7 50

STEEL BRUSH FLUE CLEANER



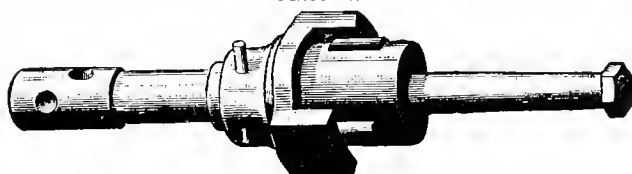
SIZES

1½ inch, 1¾ inch, 2 inch, 2¼ inch, 2½ inch and 3 inch in diameter.
Per inch of diameter\$0 50

IN ORDERING ALWAYS STATE SIZE CLEANER WANTED

ROLLER FLUE EXPANDER

CLASS "A"



SIZES AND PRICES

Diameter, Inches.....	1	1¼	1½	1¾	1⅞	2
Price, Each.....	\$10.00	10.00	10.00	10.00	10.00	10.00
Diameter, Inches.....	2¼	2½	2¾	3	3¼	3½
Price, Each.....	\$12.00	14.00	16.00	18.00	20.00	23.00
Diameter, Inches.....	3¾	4	4¼	4½	5	6
Price, Each.....	\$25.00	30.00	35.00	40.00	50.00	60.00

The above sizes given are for outside dimensions of tubes.

BEADING TOOLS

Price for either large, medium or small flues.....each, \$0 75

CALKING TOOLS

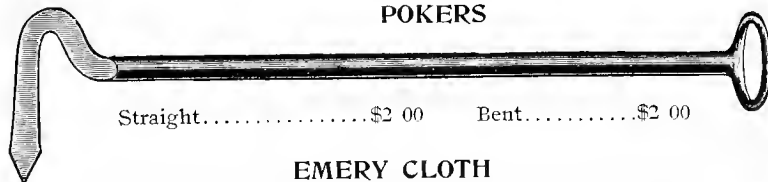
Price.....each, \$0 50

COAL SCOOPS



Cast steel, extra heavy, each.....\$1 00

POKERS



Straight.....\$2 00 Bent.....\$2 00

EMERY CLOTH

		PER QUIRE.	PER SHEET.
No. 00, 0, ½, very fine, and 1 and 1½....	Fine.....	\$1 25	\$0 10
" 2	Medium.....	1 35	10
" 2½	Coarse.....	1 50	16
" 3	Very ".....	1 65	10

CROCUS CLOTH

For cleaning Separator Spindles.....per sheet, \$0 10

STEAM WHISTLES



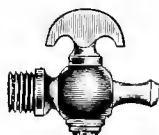
Without Valve.

Size of pipe, inches.....	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$
Diameter of bell, inches..	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Without valve, each.....	\$2 20	2 75	3 00	4 35	5 25	7 25	9 50	12 00
With valve, ".....	3 10	3 75	4 00	5 50	6 50	8 50	11 50	15 00



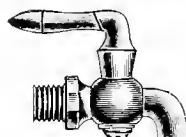
With Valve.

AIR COCKS



Straight Nose

Size, iron pipe, inches..	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Tee handle, straight, each.....	\$0 40	40	50	60
Lever handle, Bibb, each.....	80	80	90	1 00



Bibb

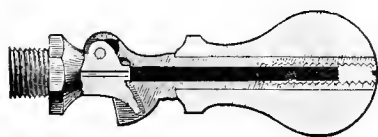
GAUGE COCKS

COMPRESSION, WITH SOFT METAL SEAT

Diameter of shank, inches.....	$\frac{5}{8}$	$\frac{3}{4}$	1
Will chase (iron pipe sizes) in..	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Price, with wood handle.....	\$1 10	1 20	1 35
With stuffing box.....	1 35	1 50	1 70



BALL GAUGE COCKS



Sizes, $\frac{1}{2}$ inch
 $\frac{3}{4}$ " "

Price, either size.....\$1 00

SCOTCH WATER GLASSES

FOR WATER GAUGES

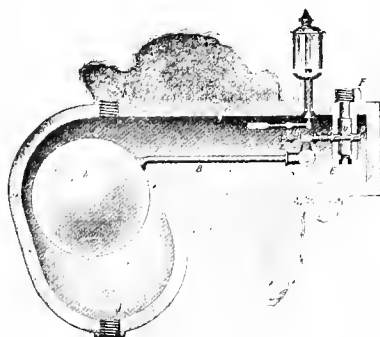
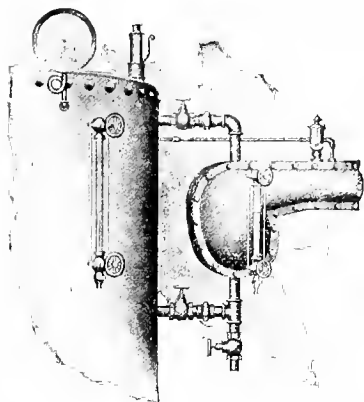


Length, inches	10	11	12	13	14	15	16	17	18	19	20	22	24	30	36
$\frac{3}{4}$ -inch diameter, each.....	30	33	36	40	43	46	49	52	55	59	62	68	74	93	1 12
$\frac{5}{8}$ " " ".....	25	27	30	32	35	37	40	42	45	47	50	55	60	75	90

 $\frac{1}{2}$ -inch glasses same list as $\frac{5}{8}$ -inch glasses.

Rubber washers for same, 20 cents per dozen, net.

CLARK'S BOILER FEED REGULATOR AND LOW WATER ALARM



Sectional View.

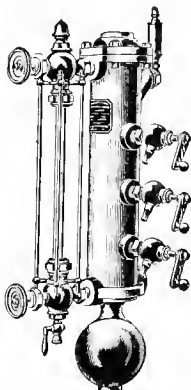
This machine can be attached to any style boiler with little or no expense, and will relieve you from all attention to the water which is held at a fixed level and without the least variation, which saves 10 to 25 per cent of your fuel, besides leaky flues, burnt crown sheets, and perhaps the loss of life and property through explosion from low water.

No Creamery or Cheese Factory should be without this attachment on their boiler, it will cover its cost the first three months in use by the saving of time alone. It is simple, inexpensive and will wear a lifetime. The Low Water Alarm in connection, is an additional safeguard in the event of the failure of pump to work, or water supply becoming exhausted.

We send these machines to any responsible parties on 30 days trial.

No. 1, capacity	4 to 60 H. P.	\$50 00
No. 2, "	60 to 250 "	60 00
No. 3, "	250 to 500 "	80 00

RELIANCE SAFETY WATER COLUMN



You need a **Reliance** Safety Water Column. Why? Not because of the danger of a boiler explosion alone, but because of the advantages in using. No stoppage; no leaky boilers; no burned boilers; no bursted cylinders; saving of fuel; saving of boilers; steady power. The **Reliance** Safety Water Columns are the only successful columns and they are warranted.

These low water alarm columns whistle only when the water line reaches the center of the lower gauge cock.

Any kind of water gauge or gauge cocks may be used. In selecting columns, care should be taken to get those with proper distance between the upper and lower gauge cocks in accordance with the natural variation of the water in the boiler on which they are to be used. Ordinarily, the distance between the extreme gauge cocks provided for, with any boiler, can be taken as a guide in this respect.

Highest and only awards
at the World's Fair.

DIMENSIONS AND PRICES.

No	LOW WATER ALARM.				GENERAL DIMENSIONS.							
2	36 to 54 in.	\$25 00	\$ 7 00	1	$1\frac{1}{2}$	$1\frac{1}{2} \times 14$	$5\frac{1}{4} \times 12$	3	$1\frac{1}{2}$	16	$3\frac{1}{4}$	$23\frac{1}{2}$
6	54 to 74 in.	38 00	10 00	$1\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4} \times 16$	$3\frac{1}{4} \times 14$	4	$3\frac{1}{4}$	$18\frac{1}{4}$	$4\frac{1}{4}$	$27\frac{1}{4}$
8	Vertical.	35 00	10 00	$1\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{1}{4} \times 21$	$3\frac{1}{4} \times 19$	6	$3\frac{1}{4}$	26	$5\frac{1}{4}$	36

PIPE AND FITTINGS.

Size of Pipe.	1/8 in.	1/4 in.	3/8 in.	1/2 in.	3/4 in.	1 in.	1 1/4 in.	1 1/2 in.	2 in.	2 1/2 in.	3 in.	3 1/2 in.
Black, per foot.	\$0 05 1/2	\$0 05 1/2	\$0 05 1/2	\$0 08 1/2	\$0 11 1/2	\$0 16 1/2	\$0 22 1/2	\$0 27	\$0 36	\$0 57 1/2	75 1/4	\$0 95
Galvan'd, per ft.												
Cutting threads, per thread.....	5	5	5	5	5	6	7	8	10	15	20	25

Size of Fittings in inches.....	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
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Elbows

Black cast, R. H.		\$0 05	\$0 05	\$0 06	\$0 08	\$0 10 1/2	\$0 16	\$0 20	\$0 28	\$0 50	\$0 75	\$1 05
Galvanized cast, R. H.		10	10	12	16	21	32	40	56	1 00	1 50	2 10
Black malleable, R. H.	\$0 04	4	6	10	15	22	35	50	80	1 50	2 25	
Black cast, reducing				7	9	12	18	23	32	60	85	1 20
Black cast, R. & L.		6	6	7	9	12	18	23	32	60	85	
Black cast, 45°			6	7	10	12	19	24	31	60	90	1 25
Black malleable, street		10	10	12	20	25	40	55	90	1 50		
Galvanized " "		12	12	15	28	35	55	80	1 30			

Return Bends

Black cast, open R. H.						26	30	40	55	80	1 35	2 20
" " " R. & L.						30	35	46	64	92	1 55	2 50
" " " close R. H.					18	20	22	28	40	57	1 20	1 70
" " " R. & L.					21	23	26	33	46	66	1 40	1 95

Tees

Black cast.....		8	8	9	12	15	23	29	41	73	1 10	1 50
Galvanized cast.....		16	16	18	24	30	46	58	82	1 46	2 20	3 00
Black malleable.....	7	7	8	11	15	25	30	45	60	1 50	1 70	2 50
Black cast, reducing.....				10	14	17	27	33	47	83	1 25	1 75

Crosses

Black cast			15	16	22	27	42	58	75	1 30	2 00	2 70
Galvanized cast			30	32	44	54	84	1 06	1 50	2 60	4 00	5 40
Black cast, reducing.....				18	25	30	46	60	83	1 45	2 20	3 00

Unions

Black malleable	18	18	20	22	27	33	46	58	75	1 55	2 10	3 65
Galvanized malleable.....	27	27	30	33	40	50	70	90	1 15	2 35	3 15	5 50
Black cast, flanged, rubber gasket.....					40	46	52	64	78	1 00	1 25	1 80
Galvanized cast, flanged, rubber gasket.....				80	92	1 04	1 28	1 56	2 00	2 50	3 00	3 60

Nipples

Black, close or short.....	4	4	4	5	6	8	11	13	18	39	48	75
Galv'd, close or short.....	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to
Black, long	6	6	6	7	9	13	17	20	27	59	72	1 05
Galvanized, long	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to	Add 60 per cent to

Couplings

Black wrought.....	5	5	6	7	10	13	17	21	28	40	60	80
Galvanized wrought.....	6	6	8	10	13	18	25	32	40	55	80	1 05
Black wr'gt, R. & L.	7	7	8	11	15	20	25	30	50	85	1 20	1 60
Black malleable, R. & L.	4	5	8	12	16	25	36	52				
Galvanized malleable, R. & L.		6	8	10	17	25	35	55	75			

Reducers

Black malleable.....	3	3		5	10	16	20	28	45	70	1 00	1 50
Galvanized malleable.....				8	15	25	35	45	75	1 05	1 65	2 40

Plugs

Black cast.....	2	2	2	2	3	4	5	7	16	18	25	38
Galvanized cast.....	4	4	4	4	6	8	10	14	20	36	50	76

Caps

Black malleable.....	3	4	5	8	12	16	24	32	45	85	1 00	
Galvanized malleable.....	4	5	8	12	17	24	38	52	76	1 30	1 60	

Bushings

Black cast.....		4	4	5	6	7	9	14	21	30	40	
Galvanized cast.....		8	8	10	12	14	18	28	42	60	80	
Black malleable.....	4	4	4	5	6	7	9	14	21			
Galvanized malleable.....	8	8	8	10	12	14	18	28	42			

Lock Nuts

Black malleable	2	3	4	5	7	9	11	18				
Galvanized malleable.....	3	4	5	7	10	14	20	30				

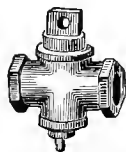
PIPE FITTINGS



Steam Sq. Head.



3-way Sq Head.

Steam or Water
Flat Head.

COCK WRENCHES



Square Head.



Flat Head.

Size of Fittings in Inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Cocks										
Steam or Water Sq. or Flat Head.	\$0 85	\$1 00	\$1 25	\$1 70	\$2 35	\$3 70	\$4 85	\$7 30	\$14 50	\$22 50
3-way Square Head			2 50	3 00	3 75	5 75	7 15	11 00	18 75	26 00
Cock Wrenches										
Black malleable Sq. Head.			7	9	14	19	25	44	56	56
Black malleable Flat Head.			7	9	14	25	44	56	1 00	1 00

EXPANSION PIPE HANGERS

CRANE'S

PRICE EACH

3/4 in.	1 in.	1 1/4 in.	1 1/2 in.	2 in.	2 1/2 in.	3 in.
\$0 32	\$0 33	\$0 35	\$0 45	\$0 55	\$0 65	\$0 80

RING HOOK

PRICE EACH

3/4 in.	1 in.	1 1/4 in.	1 1/2 in.	2 in.	2 1/2 in.	3 in.
\$0 17	\$0 18	\$0 19	\$0 25	\$0 29	\$0 36	\$0 44

PLATES



Floor.



Ceiling.

PRICE EACH

Size.	1/2 in.	3/4 in.	1 in.	1 1/4 in.	1 1/2 in.	2 in.
Floor...	\$0 06	\$0 06	\$0 08	\$0 11	\$0 14	\$0 16
Ceiling...	11	13	16	18	23	27

BEAM HOOKS



3/4 in.	1 in.	1 1/4 in.	1 1/2 in.	2 in.
\$0 15	\$0 18	\$0 22	\$0 24	\$0 35



BRANCH TEES

Number of branches.	2	3	4	5	6	7	8	10	12
Size, pipe, 1 in. inside diam.	\$0 90	1 05	1 15	1 35	1 60	1 90	2 20	3 15	4 40
" " 1 1/4 " " " "	1 30	1 65	2 00	2 40	2 80	3 20	3 60	4 80	5 25
" " 1 1/2 " " " "	2 10	2 70	3 35	4 00	4 65	5 25	5 85	7 60	8 50

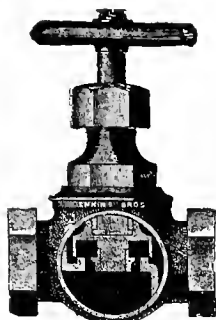
HOOK PLATES



No. of Hooks.	1	2	3	4	5	6
For 3/4 inch pipe, 2 inches between centers, expansion.	\$0 12	23	34	45	55	65
" " " " " " " " plain	15	25	35	50	60	70
" " " " " " " " plain	08	16	21	24	28	34
" " " " " " " " plain	09	18	23	26	32	38

VALVES

RENEWABLE VULCANIZED ASBESTOS DISC VALVE



Globe.

Disc and Holder,
complete.

P. & C. Check.

Sectional view
Disc Holder.

Angle.

These valves are provided with Vulcanized Asbestos Discs, composed of the fibre of asbestos, to which is added—by patented process—the waterproof vulcanizing material, making a very durable packing, which will not crack or flake off. They are held in a central position by guides cast on the valve body, and have no nuts, screws or pins which can become detached in use. The discs are furnished in brass holders, ready for use, and can be put in place by simply removing the bonnet of the valve, slipping a new disc on the end of spindle and replacing the bonnet again, without loss of time or need of skill.

PRICE LIST

Size, inches.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe and angle valves, brass, screwed.....	\$1 10	1 10	1 25	1 60	2 20	2 80	4 00	5 50	8 00	15 75	22 00
Same for medium heavy pressure.....				2 10	2 95	3 65	5 25	7 50	10 00	19 50	27 00
Same, flanged.....						6 00	9 00	11 00	16 50	25 00	34 00
P & C Straightway swing- ing check, brass, screw'd.....		1 25	1 25	1 30	1 75	2 25	3 25	4 25	6 25	11 50	16 00

EXTRA ASBESTOS DISCS AND HOLDERS

Size, inches.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Disk and holder complete for globe & angle valves.....	\$0 13	14	07	09	10	12	18	25	36	48	60

Prices of $\frac{1}{8}$ and $\frac{1}{4}$ -inch discs include spindles, as disc holder and spindle are one piece.

RENEWABLE VULCANIZED ASBESTOS SEAT GATE VALVES

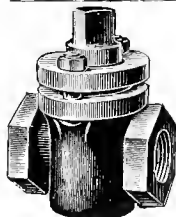
With Screwed or Flanged Ends

Size, inches.....	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, screwed end.....	\$1 25	1 60	2 20	2 80	4 00	5 50	8 00	15 75	22 00
Price, flanged end.....			5 00	6 00	9 00	11 00	16 50	25 00	34 00



EXTRA ASBESTOS SEAT RINGS FOR GATE VALVES

Size, inches.....	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Per pair.....	\$0 14	18	20	24	36	50	72	96	1 20	1 50	1 80	2 00	2 40	3 00	3 60	4 20	5 40	6 00



VULCANIZED ASBESTOS PACKED IRON COCKS

For Boiler, Blow-off, Water Columns, Etc.

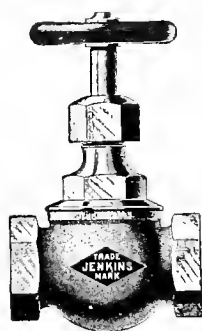
Size, inches	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Price	\$1 30	1 30	1 45	1 60	2 10	2 50	3 50	4 75

Size, inches	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Price	\$7 00	12 00	18 00	27 00	30 00	45 00	60 00

COCK WRENCHES—Malleable Iron

For all styles of Cocks

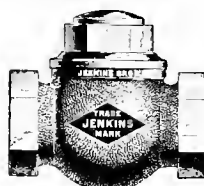
Size, inches.....	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Number.....	3	4	5	6	7	8	9	10
Price, each.....	\$0 07	09	14	19	25	44	56	1 00



GLOBE

VALVES

"JENKINS' BROS."



CHECK



JENKINS' DISC GLOBE, CHECK AND ANGLE ANGLE

Size, inches.....	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Globe and angle valves, brass.....	\$1 10	1 25	1 60	2 20	2 80	4 00	5 50	8 00	15 75	22 00
Globe and angle valves, flanged.....					6 00	9 00	11 00	16 50	25 00	34 00
Check valves.....	1 10	1 20	1 30	1 90	2 60	3 60	5 00	7 50	13 50	20 50

"JENKINS' " DISCS



Size, inches....	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price.....	\$0 03	0 04	0 04	0 05	0 06	0 09	0 12	0 18	0 24	0 33

NOTE.—To save delay, ALWAYS send sample of disc required.



"POP" SAFETY

STATIONARY, PORTABLE AND FARM ENGINE STYLE

3/4 inch, for boilers, 3 to 6 horse power.....	\$10 00
1 " " " 3 to 10 " ".....	12 00
1 1/4 " " " 10 to 20 " ".....	15 00
1 1/2 " " " 20 to 30 " ".....	20 00
2 " " " 30 to 40 " ".....	30 00

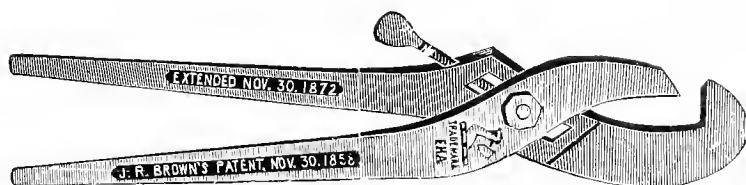
"BALL" SAFETY

Size, inches....	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Brass Body.....	\$2 20	2 50	3 25	3 90	4 70	7 15	9 00	12 50	.....	.....
Iron ".....	.....	.....	.....	.....	4 00	5 00	5 80	7 80	13 25	17 25

"COMMON" BRASS GLOBE, CHECK AND ANGLE

Size, inches.....	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Check, each....	\$0 65	0 70	0 90	1 15	1 60	2 25	3 15	4 75	9 00	13 00
" Globe or angle.....	72	77	1 00	1 26	1 80	2 52	3 50	5 30	10 00	14 40

PIPE TONGS "BROWN'S" ADJUSTABLE



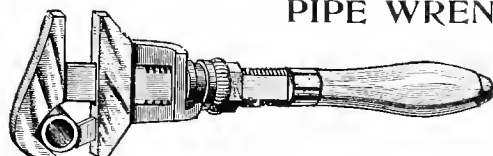
Number.....	1	1½	2	3	4	5
Takes pipe from.....	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{3}{8}$ to 1	$\frac{1}{2}$ to 1½	1 to 2	1½ to 3	2½ to 4
Price, each.....	\$1.30	\$1.65	\$2.00	\$3.00	\$6.00	\$11.00



"COMMON"

Sizes, inches.....	$\frac{1}{8}$	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1½	1¾	2	2½
Price, each.....	\$0.60	\$0.65	\$0.70	\$0.75	\$0.90	\$1.10	\$1.30	\$1.50	\$1.90	\$2.50

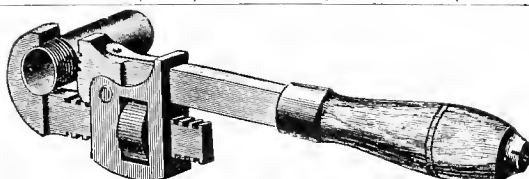
PIPE WRENCHES



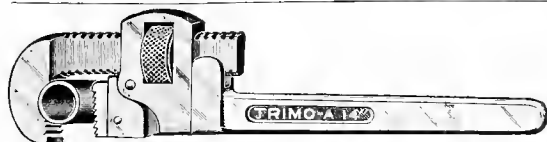
"BEMIS & CALL'S" COMBINATION PIPE AND NUT

Length, inches.....	6	12	15
Takes pipe, inches.....	$\frac{1}{8}$ to $\frac{1}{2}$ in.	$\frac{1}{4}$ to 1½ in.	$\frac{1}{4}$ to 2 in.
Price, each.....	\$2.00	\$2.50	\$4.00

"STILSON'S" PATENT



Length, inches.....	6	8	10	14	18	24	36
Size pipe, inches.....	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{3}{4}$	$\frac{1}{2}$ to 1	$\frac{3}{4}$ to 1½	$\frac{1}{2}$ to 2	$\frac{1}{4}$ to 2½	$\frac{1}{2}$ to 3½
Price, each.....	\$2.00	\$2.00	\$2.25	\$3.00	\$4.00	\$6.00	\$12.00
" Jaws.....	67	67	75	1.00	1.33	2.00	40
" Frames.....	25	25	33	45	55	65	75
" Nuts.....	20	20	27	35	42	50	65
" Handle.....	15	15	20	25	30	40	50



"TRIMO"

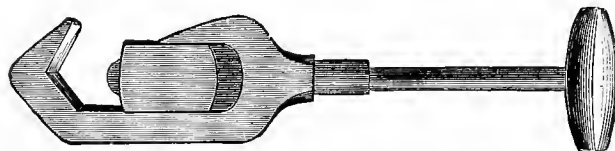
Length, inches.....	6	8	10	14	18	24
Takes pipe, inches.....	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{3}{4}$	$\frac{1}{2}$ to 1	$\frac{3}{4}$ to 1½	$\frac{1}{2}$ to 2	$\frac{1}{4}$ to 2½
Price, each.....	\$2.00	\$2.00	\$2.25	\$3.00	\$4.00	\$6.00
" Jaws.....	67	67	75	1.00	1.35	2.00
" Inserted jaws.....	25	25	35	50	55	65
" Nuts.....	20	20	30	35	45	50
" Frames.....	25	25	25	35	55	65

PIPE CUTTERS

THE "BARNES" PIPE CUTTER



Numbers.....	1	2	3	4	5
Cuts pipe from.....	$\frac{1}{8}$ to 1	$\frac{1}{2}$ to 2	$1\frac{1}{2}$ to 3	$2\frac{1}{2}$ to 4	4 to 6
Complete cutter, each.....	\$4 50	\$6 00	\$10 00	\$20 00	\$30 00
Extra wheels, ".....	25	30	40	50	75
" wheel pins, ".....	10	10	15	15	20



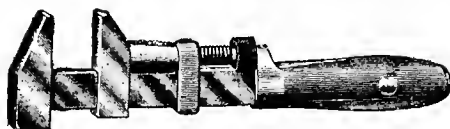
THE "STANWOOD"
PIPE CUTTER

Numbers.....	1	2	3
Cuts pipe from.....	$\frac{1}{8}$ to 1	1 to 2	2 to 3
Complete cutter, each.....	\$1 50	\$2 25	\$7 00
Cutter wheels, ".....	12	18	25
" blocks and wheels, each.....	40	60	1 00
Pins, each.....	05	05	10

THE "SAUNDERS" PIPE CUTTER



Numbers.....	1	2	3
Cuts pipe from.....	$\frac{1}{8}$ to 1	1 to 2	2 to 3
Price, each.....	\$3 00	\$4 50	\$11 00
Extra blocks and wheels, each.....	1 25	1 75	2 75
" wheels, each.....	24	32	60
" rollers, ".....	24	32	50
" pins, ".....	10	10	15



WRENCHES

"COE'S" MONKEY WRENCH

Size, inches.....	6	8	10	12	15	18	21
Price, black, each.....	\$0 80	\$0 85	\$1 00	\$1 15	\$2 00	\$2 50	\$3 00
Polished ".....	85	95	1 15	1 35	2 25	2 65	3 25

"ALLIGATOR" WRENCHES



Numbers.....	1	2	3	4	5
Holds pipe from.....	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{3}{8}$ to $\frac{3}{4}$	$\frac{1}{2}$ to $1\frac{1}{4}$	$1\frac{1}{2}$ to 2	2 to 3 in.
Holds round iron from.....	$\frac{1}{4}$ " $\frac{3}{4}$	$\frac{1}{2}$ " 1	$\frac{3}{4}$ " $1\frac{1}{2}$	$1\frac{1}{2}$ " $2\frac{1}{2}$	$2\frac{1}{4}$ " $3\frac{1}{2}$ in.
Length, inches.....	5 $\frac{1}{2}$	10	16	22	27
Price, each.....	\$0 35	\$1 00	\$2 00	\$3 00	\$4 50

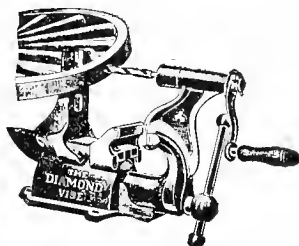
“DIAMOND” VISE WITH DRILLING ATTACHMENT



To hold pipe move small jaw back one notch.

Cut threads on right side of Vise as shown herewith; pipe is then held more securely.

Three sharp jaws 4 in. long clamp pipe up to 2 in. firmer than any other vise.



This is a first class Vise for any machinist, and very convenient for all private workshops. It should be the general Vise for all dealers to carry in stock.

JAWS are faced with steel $\frac{7}{8}$ inch wide, 4 inches long, firmly fastened to jaw and checked and hardened.

FACE of Anvil is 3 inches by 7 inches (not including horn) chilled, ground and polished, and polished surface covered with lacquer.

SCREW steel $\frac{3}{4}$ inch by $10\frac{1}{2}$ inches, $6\frac{1}{2}$ threads to an inch, cut 7 inches on the screw. Head polished.

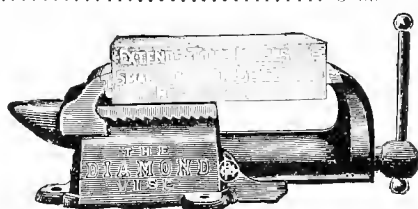
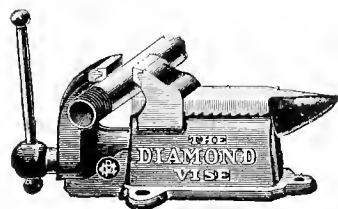
SCREW HANDLE is 9-16 inch by $2\frac{1}{2}$ inch, steel polished.

NUT is ingeniously formed of cast iron $1\frac{1}{4}$ inches thick so as to guide jaw, also remains in a firm position.

VISE weighs 38 lbs. Boxed, weighs 42 lbs. Painted green where not polished.

DRILL ATTACHMENT weighs 13 lbs. Boxed, weighs 15 lbs.

Price, without Drill Attachment.....\$3 00
 “ with “ “ 5 00



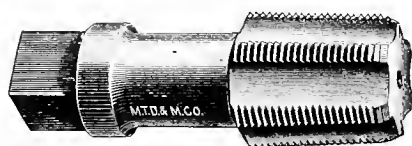
PIPE TONGS

“ROBBINS” PATENT CHAIN PIPE TONGS



Numbers	2	3	4	5	6	7
Length of Lever.....feet	$2\frac{3}{4}$	3	4	5	6	7
Diam. of Chain (link)...inches	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{3}{4}$
Takes pipe from inches	1 to 2	$1\frac{1}{4}$ to 4	2 to 6	$2\frac{1}{2}$ to 8	4 to 10	6 to 12
Price.....each	\$ 5 50	\$ 6 25	\$ 9 00	\$12 50	\$16 00	\$30 00

PIPE TAPS AND REAMERS



Size, inches.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Pipe Tap,....each,	\$1 12	1 25	1 50	1 87	2 50	3 12	3 75	4 62	6 25	10 50	15 00
Pipe Reamer, each,	\$1 12	1 25	1 50	1 87	2 50	3 12	3 75	4 62	6 25	10 50	15 00

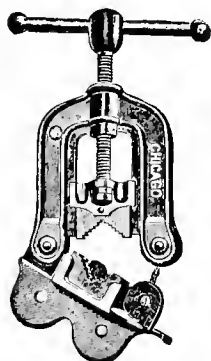
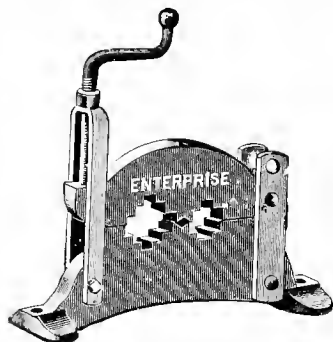
PIPE VISES

THE "ENTERPRISE" IMPROVED

This pipe vise is adapted for all sizes, from $\frac{3}{8}$ -rod to 2-inch pipe. We believe this to be the cheapest and most convenient pipe vise in use. It may be bolted to a bench, but when for portable use should be fastened to a 2x3-inch plank from $2\frac{1}{2}$ to 3 feet long. It will be found very useful by pump men for suspending the pipe from the platform while screwing the parts together, especially in deep wells. No pump man should be without it.

PRICE

Each.....\$3 00



OPEN

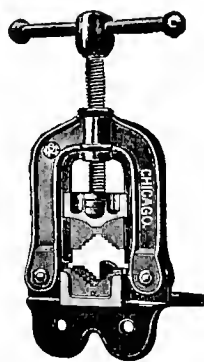
THE "MALLEABLE"

WITH HINGE

SIZES AND PRICES

No. 1 holds pipe from $\frac{1}{8}$ to 2 inches, \$10 00

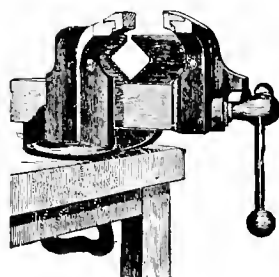
" 2 " " " $\frac{1}{8}$ " 3 " 14 00



CLOSED

THE PARKER'S "COMBINATION"

No.....	87	88	$88\frac{1}{2}$	$89\frac{1}{2}$
Holds pipe from, inches.....	$\frac{1}{8}$ to 2	$\frac{1}{8}$ to 3	$\frac{1}{8}$ to 4	$\frac{1}{8}$ to 6
Price, each.....	\$16 00	20 00	28 00	35 00



DIE STOCKS

GAS PIPE

"ASHCROFT STANDARD"



FOR WROUGHT IRON OR STEEL PIPE

SIZES AND PRICES

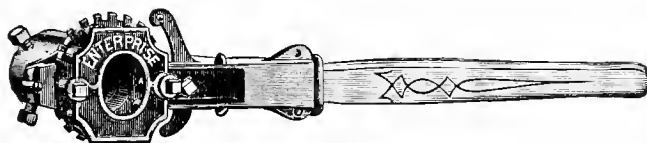
Numbers.....	0	1	1½	1¾	2	3
Pipe sizes of dies, inches, furnished with each Stock	1/8, 3/8, 1/2	3/4, 5/8, 1/2, 3/4, 1	3/4, 1, 1 1/4	1, 1 1/4, 1 1/2	1 1/4, 1 1/2, 2	2 1/4, 3
Dimensions of dies, inches	2x1 1/2	2 1/2 x 1 1/4	3x1 1/4	3x3/4	4x7/8	5x1 1/4
Stocks, complete, with right or left-hand dies.....	\$9 50	\$15 00	\$13 50	\$13 50	\$20 00	\$13 00
Stocks only.....	3 50	5 00	6 00	6 00	9 50	25 00
Extra dies, right or left hand.	1 50	2 00	2 50	2 50	3 50	9 00
" bushings.....	25	35	45	45	60	1 00
" die frames.....	25	30	40	40	50	60

NOTE.—With our No. 2 stocks 4x7/8 dies are always sent unless otherwise ordered. Nos. 2 and 3 stocks have leader screw attachment.

Following is a complete set and prices of extras used in making-up an Ashcroft Standard Gas Pipe Die Stock, from 1/4 to 2 inches.

1 No. 2 die stock.....	\$20 00
1 die frame.....	50
5 dies, \$2.00 each.....	10 00
6 bushings, 60c. each.....	3 00
	\$33 50

"ENTERPRISE" RATCHET



SPECIALLY DESIGNED FOR USE IN CREAMERIES AND CHEESE FACTORIES

Capable of a wider range of work than other pattern of stock. With it pipe can be threaded in corners of rooms, in trenches or other difficult positions where other stocks could not be used. By removing the handle, pipe can be threaded while in the well. Made of malleable iron and consequently light, yet strong and durable. Each stock fitted with Lead Screw Sleeve, provided with Steel Centering Screws, by means of which the Die is quickly and easily centered with the pipe, and a full and perfect thread assured. Made in two sizes, No. 1 and No. 2.

Bushings are sent with each Stock to adapt for each of the sizes named below.

The usual style of solid Dies of the sizes named fit the Stock and can be used with them.

SIZES AND PRICES WITHOUT DIES

Stocks.	Threads Pipe.	Bushings.	Takes Dies.	Special Die Holder.	Price Without Dies.
No. 1.....	1/4 to 1 1/2	1/4 to 1 1/4	3x3 in.	2x2 in.	\$10 00
" 2.....	1/2 " 2	1/2 " 1 1/2	4x4 "	3x3 "	15 00

PRICE, DIES ONLY

Dies 2x2 in. for 1/4, 3/8, and 1/2-inch pipe.....	each, \$1 50
" 3x3 " " 1/2, 3/4, 1, 1 1/4 and 1 1/2-inch pipe.....	" 2 50
" 4x4 " " 1, 1 1/4, 1 1/2, and 2-inch pipe.....	" 3 50

"DUPLEX"

BOTH DIES AND GUIDES INSTANTLY ADJUSTABLE

PRICE LIST

For Threading.		Without Cut-Off.	With Cut-Off.
No. 1.	1/8, 1/4, 3/8, 1/2, 3/4 pipe.....	\$13 00	\$16 00
" 2.	3/4, 1, 1 1/4, 1 1/2, 1 3/4 pipe.....	17 00	20 00
" 3.	1, 1 1/4, 1 1/2, 2 pipe.....	22 00	25 00
" 3 1/2.	1 1/2, 3/4, 1, 1 1/4, 1 1/2, 2 pipe.....	25 00	28 00
" 4.	1 1/2, 2, 2 1/2, 3 pipe.....	40 00	45 00
" 5.	2 1/2, 3, 3 1/2, 4 ".....	55 00	60 00

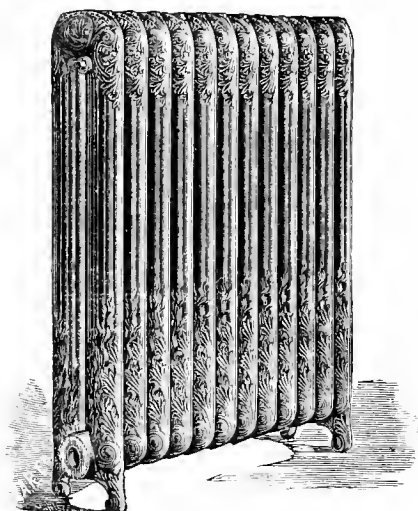
PRICES OF EXTRA DIES

Number.....	1	2	3	3 1/2	4	5
Per single set (4 pieces), right or left hand.....	\$1 50	\$1 75	\$2 00	\$2 00	\$3 50	\$4 00
Extra cut-off knives, 1, 2, 3 and 3 1/2, each....	\$0 50	Extra cut-off knives, 4 and 5, each.....				
						\$0 75

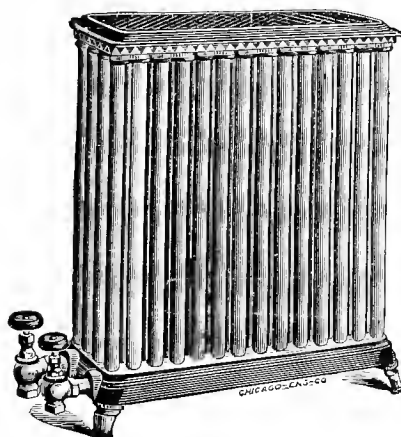
RADIATORS CAST IRON

These Radiators all have a uniform width of $7\frac{1}{4}$ inches in body and $9\frac{1}{4}$ inches at foot.

Heating surface in each radiator section.	Steam. Price, per foot.	Hot water. Price, per foot.
38 inches high, 4 feet ..	\$ 0 42	\$ 0 42
32 " " 3 $\frac{1}{2}$ " ...	46	46
26 " " 2 $\frac{3}{4}$ " ...	49	49
23 " " 2 $\frac{1}{4}$ " ...	53	53
20 " " 2 " ...	57	57



WROUGHT IRON



Two rows.	Length.	Height inches.	Width inches.
8 tubes 2x4	11 $\frac{1}{2}$ in.	34 $\frac{1}{2}$	63 $\frac{1}{4}$
12 " 2x6	1 ft. 3 $\frac{1}{2}$ "	34 $\frac{1}{2}$	63 $\frac{1}{4}$
16 " 2x8	1 " 7 $\frac{3}{4}$ "	34 $\frac{1}{2}$	63 $\frac{1}{4}$
20 " 2x10	2 " "	34 $\frac{1}{2}$	63 $\frac{1}{4}$
24 " 2x12	2 " "	34 $\frac{1}{2}$	63 $\frac{1}{4}$
32 " 2x16	3 " "	34 $\frac{1}{2}$	63 $\frac{1}{4}$
40 " 2x20	3 " 9 $\frac{1}{2}$ "	34 $\frac{1}{2}$	63 $\frac{1}{4}$
48 " 2x24	3 " 5 $\frac{1}{2}$ "	34 $\frac{1}{2}$	63 $\frac{1}{4}$
56 " 2x28	5 " 2 $\frac{1}{2}$ "	34 $\frac{1}{2}$	63 $\frac{1}{4}$
64 " 2x32	5 " 10 $\frac{3}{4}$ "	34 $\frac{1}{2}$	63 $\frac{1}{4}$

These radiators are quite expensive and seldom used at present. We can supply them if desired. Prices quoted on application.

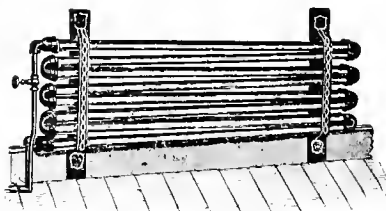
6 PIPES HIGH.

8 PIPES HIGH.

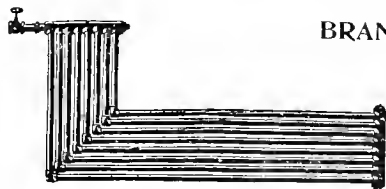
Length in feet.	Price, per foot 2 pipes wide.	Price, per foot 1 pipe wide.	Length in feet.	Price, per foot 2 pipes wide.	Price, per foot 1 pipe wide.

These coils are made to order.
Prices quoted on application.

BRACKET COIL



BRANCH WALL



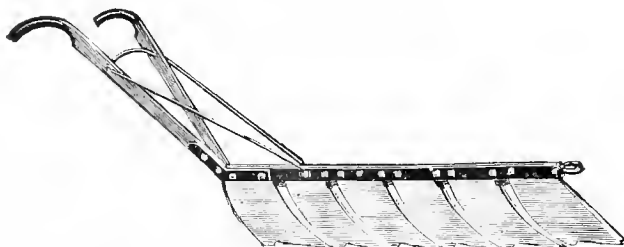
The accompanying cut shows our Branch Wall Radiator. This has a perfect drain and is an excellent and inexpensive heater. It contains 8 pipes.

Prices quoted on application.

No valves furnished with any radiators or steam coils.

ICE TOOLS

PLOWS.

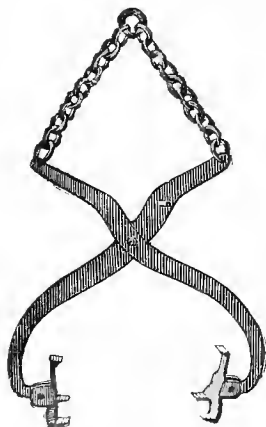


Hand plow.....		\$14 50
Marker, with guide, complete.....		58 00
6 inch plow, with guide, complete.....	\$50 50	without guide, 42 00
8 " " " " " ".....	56 50	" 48 00
9 " " " " " ".....	59 50	" 51 00
10 " " " " " ".....	61 50	" 53 00
12 " " " " " ".....	66 50	" 58 00
14 " " " " " ".....		65 00
Snow Ice Plane.....		38 00

ICE SAW.

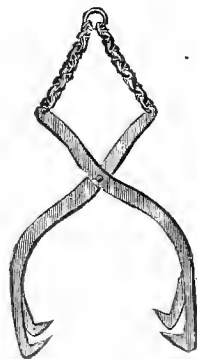


Ice saw, four feet.....	\$4 50
" four and one-half feet.....	4 75
" five feet.....	5 00
" six and one-half feet.....	6 50



LOWERING TONGS.

Price, 17-inch.....	\$1 75
" 24 ".....	2 00
" 24 " Double Points ..	2 75



HOISTING TONGS.

Hoisting tongs, with patent Claw.....	\$6 00
" " " Claw Points.....	4 50

ICE TOOLS

CALKING BAR



Calking Bar (wooden handle).....\$2 50

HEAVY FORK BAR



Heavy Fork Bar, two tines.....\$1 25

Fork Bar, three tines.....4 00

“ “ four tines.....4 25

RING-HANDLE SPLITTING BAR



Ring-handle Splitting Bar.....\$2 50

Needle Bar, with Wooden Handle.....2 00

Ring-handle Needle Bar, with Iron Handle.....2 00

SPLITTING CHISEL



Extra long Blade, specially adapted for this purpose Knob Handle.....\$2 25

Line Marker.....90

ELEVATOR FORK



Elevator Fork.....\$1 50

CHANNEL HOOK CHISEL



Channel Hook Chisel.....\$3 00

Scoop Net.....3 00

Wire Snow Shovel.....1 75

Plow Line.....1 25

FLOOR CHISEL



Floor Chisel.....\$3 25

ICE CHISEL



Steel Blade, 3-Foot Wood Handle.....each, \$1 00

ICE TOOLS

GRAPPLE.



Grapple with handle	\$4 25
" without handle	3 75
Channel Grapple with twelve foot rope	4 25
Jack Grapple	4 25

BREAKING-OFF BAR.



Breaking-off bar	\$3 25
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SOLID CAST STEEL ICE HOOKS.



Four feet handles	each, \$ 0 80
Four and one-half feet handles	" 80
Five feet handles	" 85
Six " "	" 85
Seven " "	" 90
Eight " "	1 10
Ten " "	1 20
Twelve feet " "	1 25
Fourteen " "	1 30
Sixteen " "	1 35
Turned Ash Ice Hook Handles, four feet	" 15
" " " " " four and one-half feet	" 20
" " " " " five feet	" 20
" " " " " six feet	" 30
" " " " " seven feet	" 25
" " " " " eight feet	" 30

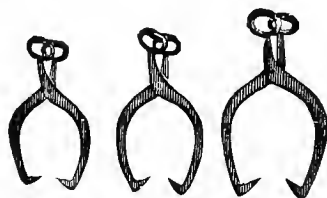
ICE ADZ.



Ice Adz	\$4 00
Chisel Bar	3 25
Striking-under bar	3 25

ICE TOOLS

REVISED PRICE LIST OF ICE TONGS.



Steel tongs, swell handle, span $14\frac{1}{2}$ in.	each, \$1 20
“ “ “ “ “ “ $16\frac{1}{2}$ “	“ 1 25
“ Loading tongs, span 24 inches.	“ 1 45
Hollow handle tongs, span $16\frac{1}{2}$ inches	“ 2 00
Edging-up tongs, steel.....	“ 1 50
Chain handle tongs.....	“ 1 40
Dredging tongs.....	“ 1 75

CHISEL BAR.



Chisel bar.....	\$3 25
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ICE AXE.

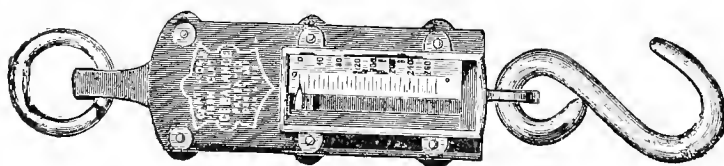


CHEST HATCHET.



Ice axes, ...	each, \$1 50
Chest hatchets, ...	“ 1 00

IRON CLAD ICE SCALES.



To weigh 200 x 5 lbs.	\$3 00
“ “ 300 x 5 “	3 50
“ “ 400 x 5 “	4 00

PAINTS

PAINT YOUR BOILER FRONT....

SMOKE STACK WITH....
STEAM PIPES
AND ALL IRON WORK..

Elliott's Hot Water and Acid Proof Enamel

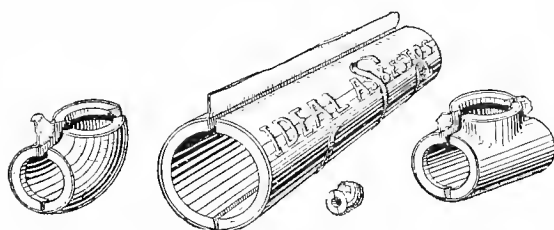
It will not only add to its appearance but will prevent rust and so lengthen the life for this purpose.

ELLIOTT'S IRON ENAMEL

is the standard paint for every kind of iron work. It gives a beautiful black, lustrous finish; very durable, always ready. The longer you keep it the better it is. If by age or exposure it grows too heavy, thin with turpentine or benzine.

1 Gallon Can.....	\$ 1 00
5 " "	4 50
10 " "	8 50
½ Barrel, about 30 Gallons.....	23 50
1 " " 50 "	38 50

"IDEAL" ASBESTOS SECTIONAL MOULDED COVERING



For all Sizes of Steam and other Pipes

This covering is composed of Asbestos and other absolutely fire proof, non-conducting materials. It is moulded in three-foot sections to fit all regular sizes of pipes, with moulded Ells, Tees, Valves, etc. It has an outer covering of canvas which is encircled by metal straps to hold it firmly on the pipes. It is easily put on by unskilled workmen, and can be readily removed and re-applied. This covering is unsurpassed for high pressure steam pipes.

PRICE LIST

For Pipe Coverings

PRICE LIST

For Fitting Coverings

Inside Diam. of Pipe	Outside Diam. of Pipe	Price per Lineal Foot
½-inch	¾-inch	19 cents
¾ " "	1 1/8 " "	19 " "
1 " "	1 3/8 " "	21 " "
1 1/4 " "	1 5/8 " "	23 " "
1 1/2 " "	1 7/8 " "	24 " "
2 " "	2 3/8 " "	25 " "
2 1/2 " "	2 7/8 " "	30 " "
3 " "	3 1/2 " "	35 " "
3 1/2 " "	4 " "	40 " "

Size	Ells	Tees	Valves	45° Ells
Inside Diam.	mould'd	mould'd	mould'd	mould'd
½ and ¾-in.	25c.	33c.	25c.	25c.
1 " "	25c.	33c.	25c.	25c.
1 1/4 " "	25c.	33c.	25c.	25c.
1 1/2 " "	25c.	33c.	25c.	25c.
2 " "	27c.	36c.	27c.	27c.
2 1/2 " "	31c.	41c.	41c.	31c.
3 " "	36c.	48c.	48c.	36c.
3 1/2 " "	40c.	53c.	53c.	40c.
4 " "	44c.	59c.	59c.	44c.

We would call the particular
attention of our friends to...

ASBESTINE

WEATHERPROOF AND FIREPROOF

* COLD WATER PAINT *

For Outside or Inside Use

FOR CREAMERY USE IT IS UNEXCELLED

It is fireproof to such an extent that the Board of Fire Underwriters in various cities make a reduced insurance rate where it is employed. It has the endorsement of the United States Government, being used on the interior surfaces of the Naval Vessels. It has been tested for its sanitary qualities by Dr. H. W. Hill, Bacteriological Chemist of the Boston Board of Health, and reported on by him as absolutely destroying all germ life with which it comes in contact.

IT IS 75 PER CENT CHEAPER THAN OIL PAINT

Can be applied by anyone. Will not crack, peel or change color with age.

~~~~~  
**COMES IN WHITE AND SIXTEEN BEAUTIFUL COLORS**  
~~~~~

PRICE PER LB. IN PACKAGES AS BELOW:

WHITE

Barrels	\$0 06½	50-lb. Kegs.....	\$0 08
Half Barrels.....	07	25-lb. Lots.....	08½
100-lb. Kegs.....	07½	10-lb. Lots.....	09

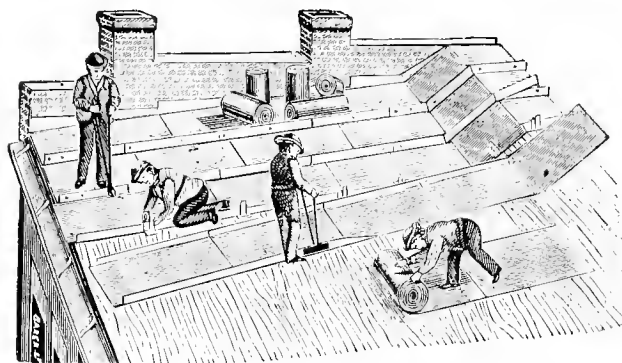
COLORS

Nos. 1-2-3-4-5-6-7-9-10-11-13-14-16		Nos. 8-12-15	
Barrels.....	\$0 08	Barrels.....	\$0 11
Half Barrels.....	08½	Half Barrels.....	11½
100-lb. Keg.....	09	100-lb. Kegs.....	12
50-lb. Keg.....	09½	50-lb. Kegs.....	12½
25-lb. Lots.....	10	25-lb. Lots.....	13
10-lb. Lots.....	10½	10-lb. Lots.....	13½

This is a Dry Powder, five pounds combined with Cold Water makes one gallon durable Paint.

ROOFING.

For Creameries, Cheese Factories and Dairies.



“SYKES” PATENT STANDING SEAM STEEL ROOFING

Most Economical, Safest and Best.

This cut shows our “Sykes” Patent Standing Seam Steel Roofing. This is all we claim for it, and is considered by all who have used it to be the most economical and in every way satisfactory Roofing obtainable. It is especially well adapted for use on creameries, cheese factories and dairies. The price, given per 100 square feet, includes everything to complete the job, such as nails, caps, cleats, dry paint for a second coat when laid, etc. We send with each order printed instructions, and loan you a set of our special tools free of charge, so that anyone can make a first-class job of it without previous experience.

Price per 100 square feet.....\$....

Corrugated Iron.

Two and one-half inch Corrugated Iron is the standard gauge in use for roofing, and also sometimes used for siding. The sheets are 26 inches wide, and cover 24 inches, with one corrugation for sidelap. Sheets can be furnished in 6, 7, 8, 9 and 10 feet length.

Price per 100 square feet.....\$....

Corrugated Iron.

The sheets are 25½ inch wide, and cover 24½ inch with one corrugation for sidelap. Sheets can be furnished in 6, 7, 8, 9 and 10 feet length. This is used for siding, as the small corrugation makes the sheets a little stiffer than the 2½ inch, and we think makes a neater job. It is also largely used for ceiling, and is well liked for this purpose.

Price per 100 square feet.....\$....

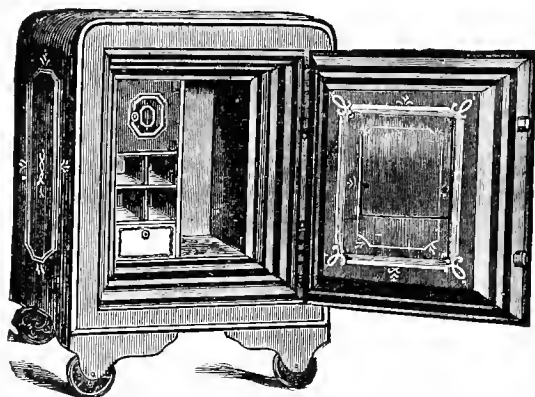
Beaded Ceiling and Siding.

Sheets when beaded cover 24 inches from center to center of outside beads. Sheets are 8 feet long. The beads are small corrugations, ¾ inch deep and 3 inches apart. This makes a very sightly and substantial ceiling, and is easily and readily applied.

Price per 100 square feet....\$....

Prices furnished on application

OFFICE FIXTURES FOR CREAMERIES AND CHEESE FACTORIES SAFES



No. 1. DIMENSIONS

Outside measure	18	$11\frac{1}{2}$	x 12 inches
Inside measure.....	$10\frac{1}{2}$	$7\frac{3}{8}$	x 8 "
Approximate weight.....	125 pounds		
Price	\$17.50		
" with inside door	22.50		

No. 2. DIMENSIONS

Outside measure	24 x 16 x 15 inches		
Inside measure.....	13	x 9	$8\frac{1}{2}$ "
Approximate weight.....	300 pounds		
Price	\$25.00		
" with inside door	30.00		

No. 3. DIMENSIONS

Outside measure	28	x $18\frac{1}{4}$	x 18 inches
Inside measure.....	15	x 10	x $9\frac{1}{2}$ "
Approximate weight	500 pounds		
Price	\$35.00		
" with inside door	40.00		

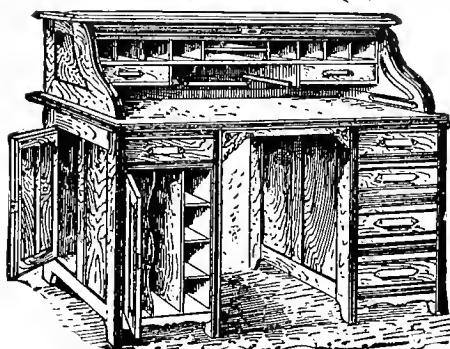
No. 4. DIMENSIONS

Outside measure	$30\frac{3}{4}$	x $22\frac{1}{4}$	x $20\frac{1}{2}$ inches
Inside measure.....	18	x $13\frac{3}{4}$	x 12 "
Approximate weight.....	700 pounds		
Price	\$45.00		
" with inside door	50.00		

No. 4. DIMENSIONS

Outside measure	$35\frac{1}{4}$	x $24\frac{1}{4}$	x 23 inches
Inside measure.....	$22\frac{1}{2}$	x $16\frac{3}{4}$	x 13 "
Approximate weight	1000 pounds		
Price	\$60.00		
" with inside door	70.00		

OFFICE FIXTURES



LOW TOP, ROLL CURTAIN

DESKS

Made in solid oak, antique finish. Drawers on left hand side. Book closet on right. Can also be furnished with drawers on both sides at same price. Former style sent unless otherwise ordered.

STYLES AND PRICES

FLAT TOP

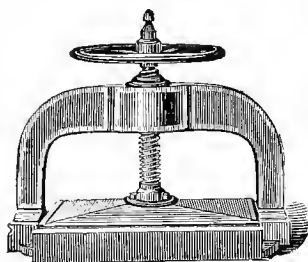
No. 198, 4 ft. 2 in. x 2 ft. 6 in., each.....\$18 00

ROLL TOP

No. 185, 4 ft. x 2 ft. 6 in., high top.....\$35 00

No. 200, 4 ft. 6 in. x 2 ft. 6 in., high top, with drawers..... 45 00

With Book Closet..... 47 50



COPY PRESS

SIZES AND PRICES

No. 3 takes book 9x11, black, \$5 00; ex. finish, \$6 00

No. 4 " " 10x12, " 5 50; " " 6 50

No. 5 " " 10x15, " 6 50; " " 7 50

No. 6 " " 11x16½ " 10 00; " " 10 50

CHAIRS

Extra strong, with arms.....each, \$2 00

BOX FILES

STYLES AND PRICES

"Chicago," size 10½x11½x3.....\$0 40

"Handy," " 10½x12 x3..... 60

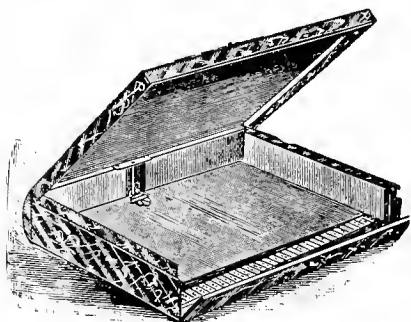
"Convenient," " 10 x12 x3..... 85

" " " 10 x14 x3..... 1 25

"Model," " 10½x12 x3..... 60

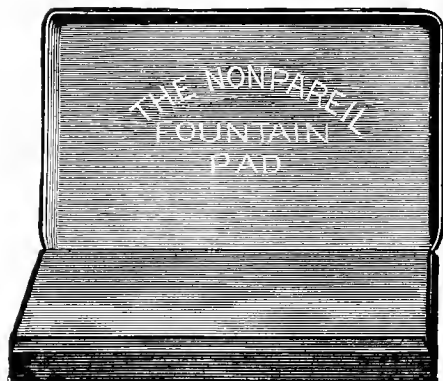
"B & B" Transfer Case, 10½x12x3..... 40

"Gum Stub" Files, 10x12x3.....each, 1 00



"B & B" Transfer Case

OFFICE SUPPLIES.



SELF-INKING PADS

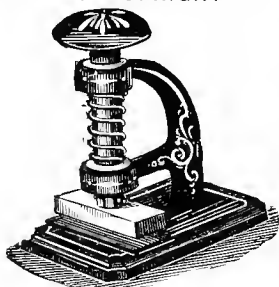
No. 0,	2¼ x 3½ inch,	each.....	\$0 30
" 1,	2¾ x 4¼ "	" "	40
" 2,	3¼ x 6¼ "	" "	60
" 3,	4½ x 7½ "	" "	85
" 4,	4 x 9 "	" "	1 00

COLORS

Red, blue, black, violet and green.

CHECK PROTECTORS

THE UPRIGHT



THE PEARL

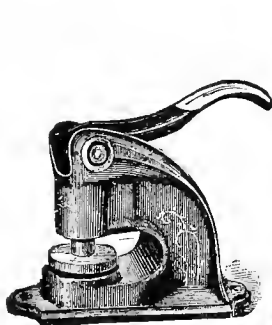


Don't wait until you have to pay for a "raised check" before using ordinary common sense precaution; these prices leave you no excuse for being without a protector. These machines make a series of abrasions in the paper, after the amount has been written in, and effectually prevent the changing of the figures.

The Upright.....\$1 25

The Pearl.....\$1 50

STAMPS OR SEALS



No. 0, Weight 20 oz.
Size of die, 1½ in. diam.
Price, \$1 75



No. 1. Weight, 2¼ lbs.
Size of die, 1¾ in. diam.
Price, \$2 00



The "Upright" Percussion
Press.
Weight, 21lbs. 1¼ die, \$2 00

SOLID RUBBER TYPE.



In 1,500 Ways you will find a Font of our Type the Handiest Thing You Ever Possessed.

Often times you need a Rubber Stamp in a big hurry, for temporary use; it is at such times that our Superior Solid Rubber Type is positively invaluable, with it any matter can be set up the same as printers' type, and after using, it can be distributed, used again and so on, giving continuous service.

PRICES.

No. 12 rubber type, with necessary spaces and quads, tweezers and a 4-line holder, ...	\$2 50
Pica dates, with holder, per set.....	1 25

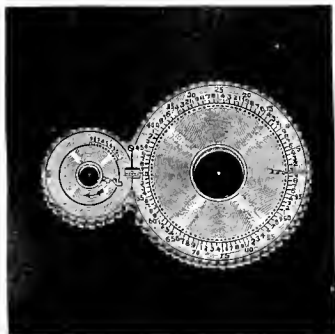
PRICES ON RUBBER HAND STAMPS.

Single line stamp, 3 inches long or less.....	\$0 30
More than one line on the same stamp:	
For the first line, 3 inches or less.....	20
For each additional line, 3 inches or less.....	15

THE "ADDER"

"IT IS THE BRIGHT DAY THAT BRINGS FORTH THE ADDER."—Shakespeare.

Too simple to be called a "machine," but guaranteed to "add" with mechanical accuracy and rapidity any number of columns of figures, one, two or three at a time.



PRICE

Each.....\$5 00

EXTRAS

Points.....\$ 20
Clips, per set 35

The above cut represents "The Adder." The method of use will be understood at a glance. Starting with "The Adder" at zero, as it now stands, one has but to put the operating point, which is attached to the end of a pencil, successively in the disc pocket standing by each number to be added, turn as the arrow indicates until arrested by the stop on the right, and the sum is seen in the slot on the left where ciphers now show. Thus, 48, 25, 99, 65, turning the larger disc for each of these numbers, and 237 shows as the sum—the hundreds carrying themselves automatically. If there be three columns only, the third may be added in similar manner, either separately or simultaneously, on the smaller disc; but if there be four or more columns, the double column process is, of course, speedier. In this way ledger accounts may be added two columns at once without confusion, weariness or mental strain, and instantaneous results had in tallying. There are no mysteries to be solved, no hours to be lost in learning to operate. All this we guarantee.

TESTIMONIALS.

OFFICE OF TREYNOR CREAMERY COMPANY
TREYNOR, IOWA.

Gentlemen:—Enclosed please find \$5.26, the amount due for "Adder." I am well pleased with the way it performs.

Respectfully yours,

F. O. WINCHELL.

UNION PACIFIC RAILWAY COMPANY

MILFORD, Utah, March 29, 1890.

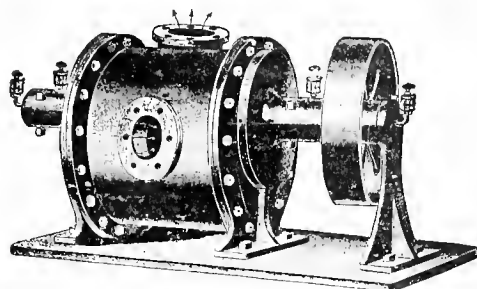
Gentlemen:—In reply to yours of March 24th, would say I am very well pleased with "The Adder," and find that for speed and accuracy it is all that is claimed for it.

Yours truly,

B. E. PALMER.

BLOWERS

POWER STYLE



We illustrate what we consider to be the best **positive blower** on the market.

It is noiseless, powerful and free from all complications of gears and intermeshing pistons or revolvers.

OPERATION

The operation of this blower is not on the fan principle, in which pressure is obtained by a high velocity of speed; but when the air enters the case at the inlet and is closed in by the vanes of the blower, it is absolutely confined and must be forced forward until finally released at the outlet, where it must

have escape or the blower stop if outlet is closed. There is positively no chance for loss by backward escapement of air, after it once enters the inlet.

In many respects this blower has points of superiority over any Positive Blower made, and we call your attention to the following points:

1st. It has no gears whatever. No internal parts that require attention, adjustment or lubrication.

2d. It has only two journal bearings that are external to the blower casing. They are self-oiling. Easy of adjustment.

3d. Has no irregular internal surfaces that require contact to produce pressure, and add friction.

4th. Operating parts are always in perfect balance; thus blower may be safely run at a higher speed than any Positive Blower made, giving a proportionate increase in efficiency and a smaller blower may be used.

5th. A higher pressure can be obtained than is possible with any other.

6th. The blower is practically **noiseless** as compared with all other makes.

7th. It has greater capacity for its size and make than any other blower.

SPECIFICATIONS AND PRICES

No. of Blower	Discharge per Revolution	Diameter of Blower Inside	Width of Blower Inside	Diameter of Inlet and Outlet	Size of Driving Pulley	Average Speed for Cupola and Brazing	Horse-power at List Speed	Size of Cupola	Weight of Blowers	Weight of Blowers with direct connected Engine	Price of Blower	Price of Blower with direct connected Engine
00	70 cb. in.	7 in.	3 in.	1 in.	6x3	500	$\frac{1}{4}$	.....	43	.....	\$ 30 00	.....
0	170 "	9 "	4 "	1 $\frac{1}{2}$ "	10x3	450	$\frac{1}{2}$	.....	112	.....	35 00	.....
$\frac{1}{8}$	$\frac{1}{4}$ cb. ft.	11 "	6 "	2 "	14x1	400	$\frac{3}{4}$	.....	170	.....	70 00	.....
$\frac{1}{4}$	$\frac{3}{4}$ "	12 "	10 "	3 "	16x1	350	1	.....	350	700	100 00	.....
$\frac{1}{2}$	1 $\frac{1}{4}$ "	18 "	12 "	5 "	20x5	300	1 $\frac{1}{2}$	.....	650	1100	150 00	.....
1	4 $\frac{1}{2}$ "	24 "	15 "	8 "	24x6	275	2 $\frac{1}{2}$	18-24 ins.	1200	2000	200 00	\$ 450.00
2	7 "	24 "	10 "	10 "	26x6	210	4	24-30 "	1700	2900	300 00	600 00
3	10 "	30 "	30 "	12 "	28x6	200	6	30-36 "	2500	3850	375 00	800 00
4	16 "	36 "	36 "	14 "	30x8	190	9	36-42 "	3800	6500	490 00	1075 00
5	26 "	42 "	42 "	16 "	36x10	170	12	42-50 "	6000	9000	700 00	1500 00
6	45 "	50 "	48 "	20 "	42x10	145	20	50-60 "	10500	18500	1100 00	2000 00
7	70 "	50 "	72 "	24 "	48x12	130	30	72 "	15000	25000	1400 00	3250 00

HAND STYLE

For parties who do not have power we can most highly recommend the No. 3 **HAND BLOWER**. This is also a positive blower of considerable power.

PRICE

No. 3..... Each, \$25 00

"PERFECTION" CHEMICAL FIRE EXTINGUISHER



A Handsome, Highly Polished, Solid Copper Machine, Affording Perfect Protection From Fire.

A GOLD MINE TO THOSE LIVING ANY DISTANCE FROM FIRE PROTECTION.

Indorsed by all the leading insurance companies. They should be in every Creamery, Cheese Factory, Dairy and Milk Depot.

The "Perfection" Chemical Fire Extinguishers

are made from heavy solid copper throughout, and tested to 200 lbs. pressure per square inch. Highly polished, they are handsome in appearance, and being the result of many years of practical experience, embody the best features of all known methods for extinguishing fire. They have no equal for SIMPLICITY, EFFECTIVENESS, DURABILITY, ECONOMY and SAFETY. They afford the cheapest method of protection from fire yet devised and as there are no cocks, gauges, couplings or valves about them it is absolutely impossible for the machine to get out of order.

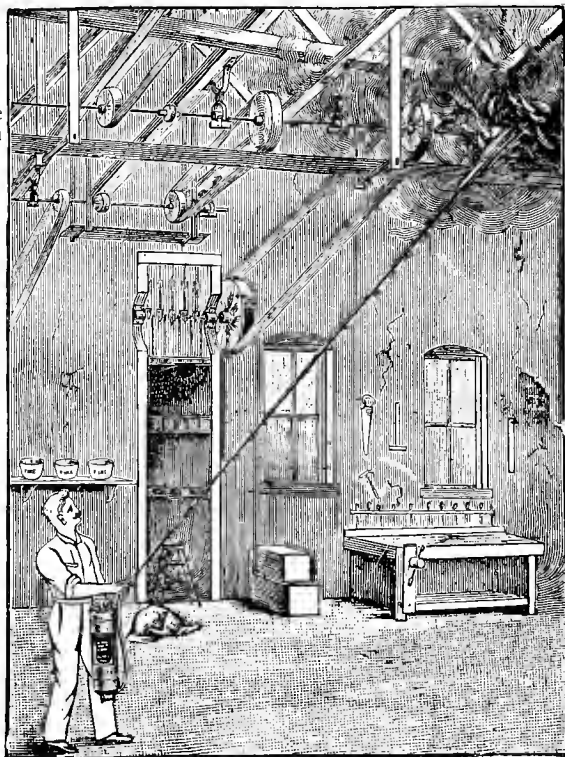
They can be operated instantly by any person although they never saw the machine before, as all you have to do is simply

TURN IT BOTTOM END UP

when you will immediately get a 50-foot stream of fire-destroying chemical fluid, the last drop going as far as the first and as destructive to flames in oil, tar, spirits, kerosene or gasoline as in burning wood and equal to over 100 times the same amount of water in quenching fire.

Chief of the Chicago Fire Dept., D. J. Swenie, is authority for the statement that 76 per cent. of the fires in Chicago are extinguished by **chemical** fire extinguishers.

PRICE, EACH, \$6.00



PASTEURIZED MILK, CREAM AND BUTTER

The Advantages it has Over the Ordinary Cream and Butter

Pasteurized products of the dairy are more than ever in favor with the public. The increased demand for the pure, healthy article is not confined alone to individuals and city milk dealers, but **creameries** are pasteurizing the entire product as it comes from the hand of the farmer and thereby producing an article of **butter with better keeping qualities** and a **continuous higher flavor**.

FIRST: What effect have bacteria on this substance? If we set a sample of milk aside it is only a matter of a few score of hours before this food product is rendered unfit for human use.

Milk as secreted in the healthy cow is known as sterile, and if it should be drawn in such condition without coming in contact with the air, and into receptacles that have been previously sterilized, it would keep sweet indefinitely; but the air teems with bacteria, therefore this is impossible. They drop into the milk from the dust in the air. They fall from the cow, and filth that may be upon her, during the process of milking. They inhabit seams and points in pails and cans and other dairy utensils, so that under all ordinary circumstances, milk contains organisms that work toward its destruction, and in many cases, toward the destruction of human life. It is a recognized fact that consumption in its many phases is a common disease of dairy cattle, and that the possibility of infection exists through the use of milk from animals affected with tuberculosis. Typhoid and scarlet fevers, as well as diphtheria, have been traced directly to an infected milk supply.

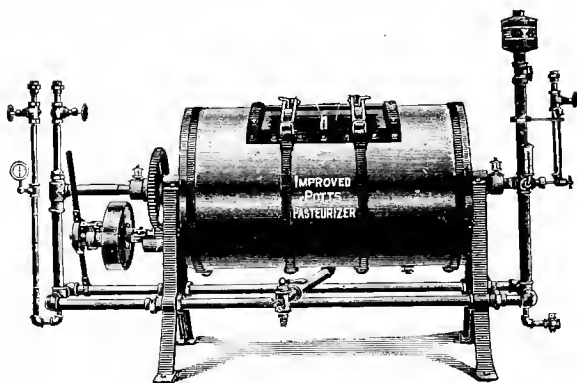
Bacteriology teaches us the same lesson, and tells us **why** dirt and carelessness increase the rapidity with which the milk is changed by these fermentations.

It shows us the relations between dirty conditions and bacterial life, how one presupposes in a certain sense the other. It is not dirt that causes the rapid change, but what the dirt contains.

If we exclude the dirt, as is done where scrupulous cleanness is inaugurated, then we will also exclude the bacteria, and with them this multitude of fermentations that always accompanies them.

This can also be accomplished by the use of heat. If the milk is heated to a temperature of about 155 degrees Fahrenheit, and held at this temperature for twenty or thirty minutes, and then cooled as low as possible, it will keep from three to six days longer than it would otherwise.

THE POTTS PASTEURIZER



The majority of pasteurizers now on the market, or which have been devised from time to time, fail to fulfil the conditions required from either an economical or sanitary standpoint. They are, therefore, not ideal. In one or two cases pasteurizing machines have been devised that gave satisfactory results so far as destruction of germ life was concerned, but some defect in operation was so patent that they were soon discarded. Recognizing the absolute necessity of approaching this problem from both points of view if success was to attend our efforts, we have spent a great deal of money, time and labor on the elaboration of a machine that is pre-eminently satisfactory from the health point of view. Again, its practical character is such as will commend it to every person who becomes familiar with its workings.

We believe that the Potts pasteurizer is the machine that is going to mark an era in the matter of milk preservation. From all reports that reach us, where the machine has been given the most crucial trials under unfavorable as well as favorable conditions, we have yet to hear of a place where it has been found wanting.

It has a small water jacket and a relatively large heating surface, so that it heats up quickly.

The milk is thoroughly agitated, thus facilitating the heating process and keeping the contents of the pasteurizer well mixed.

The cooling of the milk can be accomplished with great rapidity. For this cold well water can first be used, to be followed with ice or ice water.

This rapid alternation in temperature exerts a more marked effect on the germ life in the milk than where the changes are more gradual.

The whole process of heating, holding and chilling is under the complete control of the operator as to time of exposure and temperature.

The temperature of the milk is taken directly without opening the vat, thus excluding all danger of reinfection.

While the vat is tightly closed from the air, an automatic vent permits the expulsion of animal odors and foul taints that may be in the milk.

The milk can be bottled directly from the vat without any extra handling.

The compact form of the machine will readily appeal to any operator. It combines the whole process in one machine, or can be easily arranged to serve as either heater or cooler.

It requires less power to heat and less ice to cool than any other machine on the market.

It is easy to clean; has no complicated devices to break or get out of order.

It is, in short, a machine that fulfills the most stringent hygienic requirements; and, moreover, it is at the same time by far the most practical machine from the standpoint of economical operation that has yet been devised. We know that we can recommend it with perfect confidence. A trial will convince the most skeptical of its merits.

Not only has it given thorough satisfaction under practical conditions, but the leading dairy schools of the country where scientific points of machinery are more carefully observed, are rapidly adopting it. The University of Wisconsin dairy school has had one in daily use for a long time, and the faculty of this school pronounce it the best machine that has yet been devised for the treatment of milk for direct consumption.

Prof. Russell, of that institution, has made a number of bacteriological tests as to its germ-destroying capacity, with the following results:

Where milk is received under factory conditions, as it is at the Wisconsin school, it contains a much larger amount of germ life to begin with than that received under conditions where it is possible to more thoroughly control the handling of the milk. He found that the milk selected from a creamery supply contained about 550,000 bacteria per cc., while the same milk after pasteurization had its germ content reduced nearly 99 per cent, or to 5 to 6,000 bacteria per cc. Where milk was selected under excellent conditions as from a single dairy, it normally contained about 67,000 bacteria per cc., and about 2,000 after pasteurizing. The number of bacteria left in the milk after treatment will depend very largely upon the way the milk has been handled previous to pasteurizing. The Potts machine destroys all of the bacteria that are in the vegetating stage, and this is all that can be asked of any machine.

Prof. Russell has tested this machine where tubercle bacilli were actually added to the milk, and finds that the infectiousness of such milk is actually destroyed in the Pott's pasteurizer.

SIZES AND PRICES

50 gal. complete, with iron stands, thermometer, etc.....	\$125 00
75 " " " " " " " "	135 00
100 " " " " " " " "	150 00
150 " " " " " " " "	175 00
200 " " " " " " " "	200 00

These prices are F. O. B. factory.

THE NELSON PASTEURIZER

A SUCCESSFUL MACHINE.

Requires { little room
little power
little attention

THIS PASTEURIZER is similar to the Potts' machine, so far as the method of pasteurization is concerned. The heat introduced between the wood jacket and the metal cylinder is in exactly the same manner.

The machine is built in an upright position, so that it occupies much less space than the Potts'.

The necessary circulation to prevent cooking, and provide a uniform temperature, is secured by a screw similar to the propeller of a steam yacht, located in the bottom of the milk reservoir. This is revolved at moderate speed, by either hand or belt power. This produces a constant agitation of the milk or cream that affects the entire body, whether Pasteurizer is entirely or partially filled.

Very little power is required to operate this Pasteurizer.

It can be used either as pasteurizer or as cream ripener with best results.

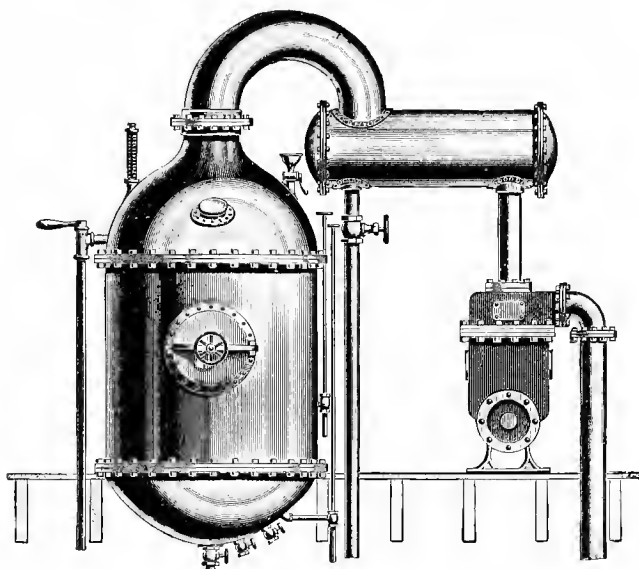


SIZES AND PRICES.

25 Gallons, complete, with iron stands, thermometer, etc.,	\$100 00
50 " " " " " " "	110 00
75 " " " " " " "	120 00
100 " " " " " " "	135 00
150 " " " " " " "	160 00
200 " " " " " " "	185 00

These prices are F. O. B. factory.

CONDENSED MILK MACHINERY



SPECIAL ATTACHMENTS NOT SHOWN

We furnish outfits complete for Condensed Milk Factories, having capacity ranging from 1,000 to 100,000 lbs. of milk per day.

We also will be pleased to furnish plans for buildings if desired.

We will set up and put in perfect running order all outfits and guarantee them to produce first-class goods.

In many places milk-condensing can be made profitable.

If interested write us, stating capacity of factory wanted and we will be pleased to submit estimates.

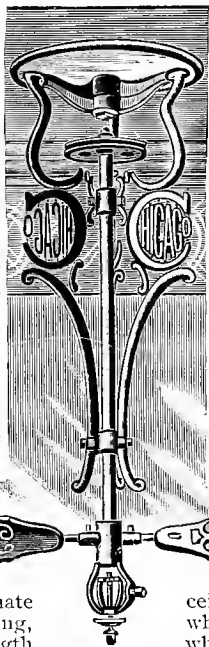
FANS

ROTATING

For Low Ceilings

Our Fans will positively keep out flies, the reason being that it makes the climate too cool for them. They will not remain where fans are used. They can be placed over butterworkers, churns and cream vats, and be used to advantage not only for keeping away flies but keeping the air cool. We would particularly recommend this fan where fan is needed at a low price. They are all furnished with our nickel-plated clutch, which is very desirable, as it enables any fan to be stopped or started or driven at different speed without interfering with the others.

Our Patent Clutch forms an oil cup at the bottom, and when stopping or starting the fan, the acorn or handle at the bottom



of the clutch can be perfectly still while the fan is running, which is a wonderful improvement.

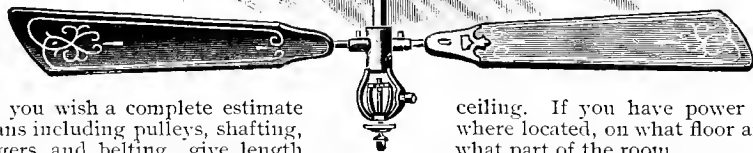
SIZES AND PRICES

STYLE "A"

Height of ceiling.	
7 ft.	\$ 6 00
7 " 6 in.	6 75
8 "	7 25
8 " 6 "	8 25
9 "	9 00
9 " 6 "	9 75
10 "	10 75

Other sizes in proportion.

Pulley, Shafting, Hangers and Belting extra.

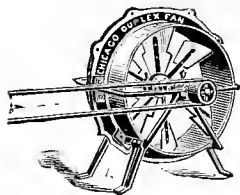


If you wish a complete estimate of fans including pulleys, shafting, hangers and belting, give length and width of room and height of

ceiling. If you have power state where located, on what floor and in what part of the room.

EXHAUST

"GREAT WESTERN" STYLE



These Fans will be found very useful to creamerymen who have small boiler room, or boiler rooms that are in connection with the engine room. With them you can change the air of these rooms and drive out all the smoke or dust. They can also be used in the main working room to change the air and keep the room cool and in better shape for the regular work of a creamery.

SIZES, SPEED AND PRICE

Number.	Size.	Speed, revolutions per minute.	Size of pulley.	Horse Power required.	Price.
1	18 in.	700 to 1500	3 in.	$\frac{1}{8}$ to $\frac{1}{4}$	\$ 40 00
2	24 "	650 " 1300	4 "	$\frac{1}{4}$ " $\frac{1}{2}$	50 00
3	30 "	600 " 1000	5 "	$\frac{1}{4}$ " $\frac{3}{4}$	65 00
4	36 "	575 " 900	6 "	$\frac{1}{2}$ " 2	85 00
5	42 "	500 " 875	7 "	$\frac{3}{4}$ " 3	105 00
6	48 "	450 " 850	8 "	1 $\frac{1}{4}$ " 4	125 00

The above prices include iron frame, stand and two self-oilers, together with pulley.

ARTICLES OF INCORPORATION AND BY-LAWS

For Cheese Factory and Creamery Associations.

ARTICLES OF INCORPORATION OF ASSOCIATION.

Article I. Whose names are hereto subscribed, and whose residences are within the county of in the state of do hereby associate ourselves together as a co-operative association under the laws of the state of to which we have adopted the following constitution, viz:

ARTICLE I.

The name of the Association will be the Association, and its place of business shall be at or near Section in the Town of in said county.

ARTICLE II.

The object of this association shall be the manufacture of butter and cheese or both from whole milk, at actual cost.

ARTICLE III.

The officers of this association shall be a President, Vice-President, Secretary, Treasurer and three trustees, who shall be elected annually at the regular annual meeting of the Association, to be held on the first Monday of January of each year and their term of office shall be one year and until their successors shall have been duly elected and qualified.

ARTICLE IV.

The duties of the respective officers shall be as follows: The President shall preside at all meetings of the association, He shall have power to call special meetings of the association whenever in his judgment required by the business of the association or upon the written request of five or more members.

The Vice-President shall perform the duties of the President when he is absent or otherwise unable to attend to them.

The Secretary shall keep a record of all the meetings of the association, and make and sign all orders upon the Treasurer and pay over to the Treasurer all money which comes into his possession, taking the Treasurer's receipt therefor.

The Treasurer shall receive and receipt for all moneys belonging to the association and pay out the same only upon orders which shall be signed by the Secretary. The Secretary and Treasurer shall give bonds in such amount as the association shall provide.

The President, Vice-President, Secretary and Treasurer and three trustees shall constitute the Board of Directors, whose duties shall be to audit and allow all just claims against the association. They shall compute the amount of milk receipts, the amount of product sold, and the moneys received therefor, and, after deducting from the total receipts, the percentage herein provided for as a sinking fund and also the running expenses, on the 15th day of each month, divide the remaining receipts of the preceding month among the members and patrons of the association proportionately to the amount of

whole milk or fat furnished by each. Provided, however, that in case of withdrawal of any member from this association before the moneys herein provided to be borrowed shall have been paid in full, principal and interest, all product from milk furnished by such withdrawing members then on hand, and any moneys received from such product then in the possession of the association shall be retained until all said moneys so borrowed shall have been fully repaid, and thereafter said moneys, or any remainder thereof after applying the just share such withdrawing members therefrom to the repayment of any balance of such indebtedness not paid from the sinking fund, shall be paid over to him or his assigns.

The Board of Directors shall cause the Secretary to make, in writing, a report to the annual meeting of the association, setting forth in detail the gross amount of milk receipts, the net amount of receipts from products sold and all other receipts, the amount paid out for running expenses, the sums, if any, paid out for milk, and all other matters pertaining to the business of the association. A like statement, containing the gross amount of milk receipts, the net receipts from products sold and all running expenses of the creamery shall be made each month and posted conspicuously in the creamery building at the time of the division of the prior month's receipts as aforesaid.

The Board of Directors shall borrow a sum of money not exceeding, ... Thousand dollars, to be used by them in the erection and completion and furnishing of the creamery building and for no other purpose. Said members of said board may borrow said money on their own responsibility, and in case they do so, then the sinking fund herein provided for shall by them be applied in payment of such borrowed moneys as the same fall due in the same manner as though said moneys had been borrowed by the association. Said members of the board in such case shall be held to be the creditors of the association to the amount of such moneys unpaid, and the several members of said association shall be personally responsible, jointly and severally, for the same. Provided, however, that prior to any legal assertion of such individual responsibility, the entire sinking fund then accrued and on hand shall be applied upon such indebtedness. And, provided further, that said members so borrowing said moneys may if they so elect, demand and receive any part or all of the moneys received from products sold then in the possession of the association, upon such indebtedness before enforcing such personal responsibility. In which case only that part of such indebtedness remaining after applying thereon all sums so received shall be recovered or demanded from the members of the association.

ARTICLE V.

The several members shall furnish all the milk from all the cows subscribed by each, all milk to be sound, fresh, unadulterated, pure and unskimmed, and patrons of the association, not members, may by agreement with the Board of Trustees furnish such amounts of milk as may be so agreed upon. The association shall receive all such milk so furnished, manufacture the same into butter, cheese or other products and sell and receive all moneys from the product; and from the moneys so received deduct such a percentage thereof or such a number of cents per one hundred pounds of milk as shall have been agreed upon by the association in the by-laws or otherwise and also deduct the running expenses of the creamery, the remainder thereof to be distributed as provided in Article IV hereof.

ARTICLE VI.

Each member shall be entitled to one vote

NAMES.

BY-LAWS OF THE ASSOCIATION.

I.

The Secretary and Treasurer shall give bonds in the sum of dollars, both the bonds to be approved by the Board of Directors.

II.

Five cents on each one hundred pounds of milk received at the creamery shall be reserved to form a sinking fund.

III.

No milk shall be received or business of any kind transacted at the creamery on Sundays.

IV.

During the interval between the 20th day of May and the 20th day of September of each season all milk shall be delivered at the creamery as early at least as nine o'clock a. m.; during the remaining portion of the season as early as ten o'clock a. m.

V.

All milk delivered shall be sweet and in good condition; and if any be found otherwise, the operator may condemn the same, and in such case he shall notify the president thereof. The operator shall preserve samples of every delivery of each patron's milk, testing same at proper intervals on the composite testing plan.

VI.

Any member or patron of the Association found skimming, watering, or in any manner adulterating his milk offered at the creamery shall forfeit to the association as follows: For the first offense, ten dollars; for the second offense, twenty-five dollars; for the third offense he or she shall forfeit all interest in the association and also all claims for milk theretofore delivered to the association. But no such forfeiture shall be adjudged without first affording to the member or patron charged with so having skimmed, watered or adulterated his milk, full opportunity to defend himself from such charge.

only at any meeting of the association. New members may be admitted as provided in the By-Laws. Members shall be permitted to withdraw only as provided in the By-Laws.

ARTICLE VII.

The first officers and Board of Trustees shall be as follows: President; Vice-President; Secretary; Treasurer; Trustees.

ARTICLE VIII.

The constitution may be amended at any annual meeting, or at any special meeting called for that purpose, provided that two-thirds of all members present vote in favor of such change; and provided further, that at least one month's notice of such proposed amendment shall have been given in such manner as may be provided in the By-Laws, or otherwise by the association.

Any member sending to the creamery any bloody or unhealthy milk, or any milk from any cow within four days after calving, shall, if convicted of having done so knowingly, forfeit as prescribed above in this section.

VII.

Members and patrons furnishing whole milk may take from the separator or tank at the creamery four-fifths of the quantity of milk (in pounds or quantity) delivered at the creamery by them on that day. Any member taking therefrom more than such amount shall forfeit to the association the sum of five dollars for each such taking.

VIII.

Withdrawals from the association shall be allowed only as follows: The member desiring to withdraw shall give at least one month's notice of his application therefor. Such application shall only be allowed on a vote of two-thirds of all members present and voting at any meeting for hearing at which such application shall have been noticed. Provided, however: That any member living more than three miles by the nearest road from the creamery building, may make application to the Board of Directors, who in their discretion may grant permission to such member to withdraw from the association.

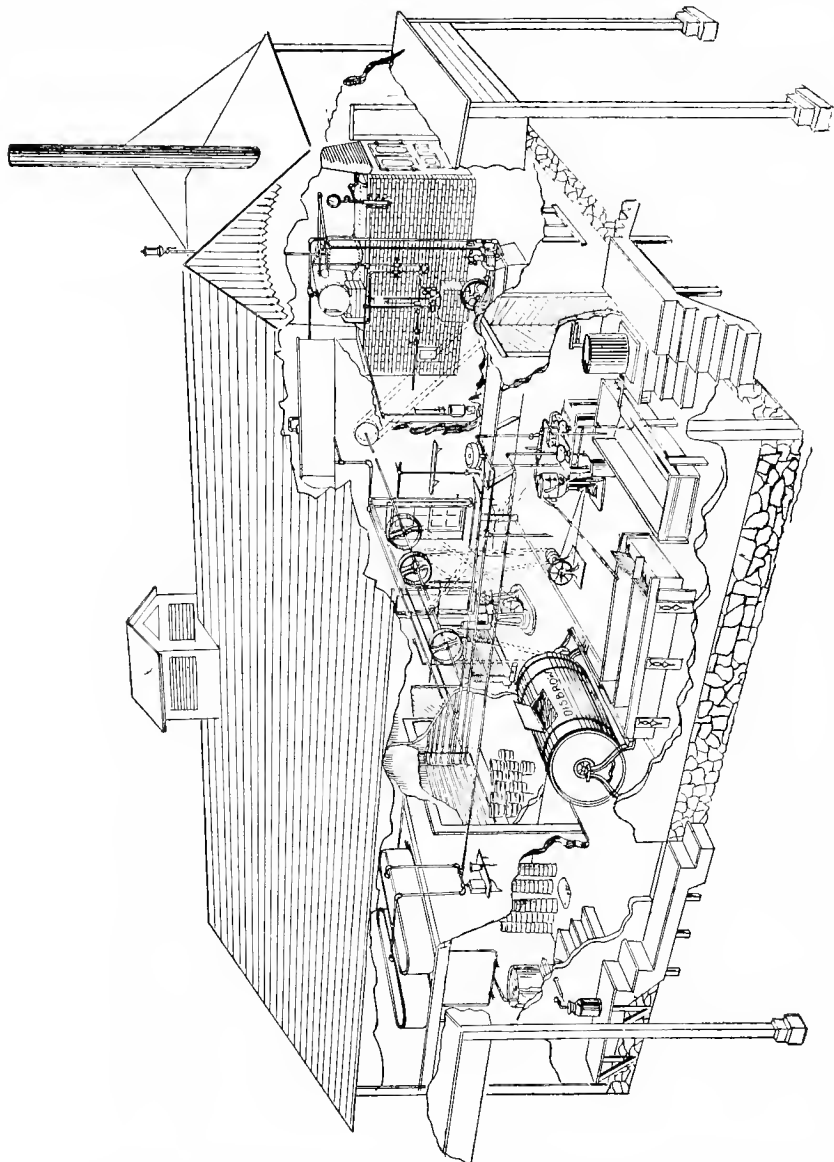
IX.

Any member refusing to deliver at the creamery, the amount agreed to be there delivered, shall without reasons satisfactory therefor to the association, forfeit all interest in the product on hand.

X.

Notice of any proposed amendment to the constitution shall be in writing or printing and shall be kept posted prominently in the creamery building and also on the walls of the delivery department for the reception of milk.

BUILDING AND INTERIOR VIEW OF OUR CREAMERY No. 5



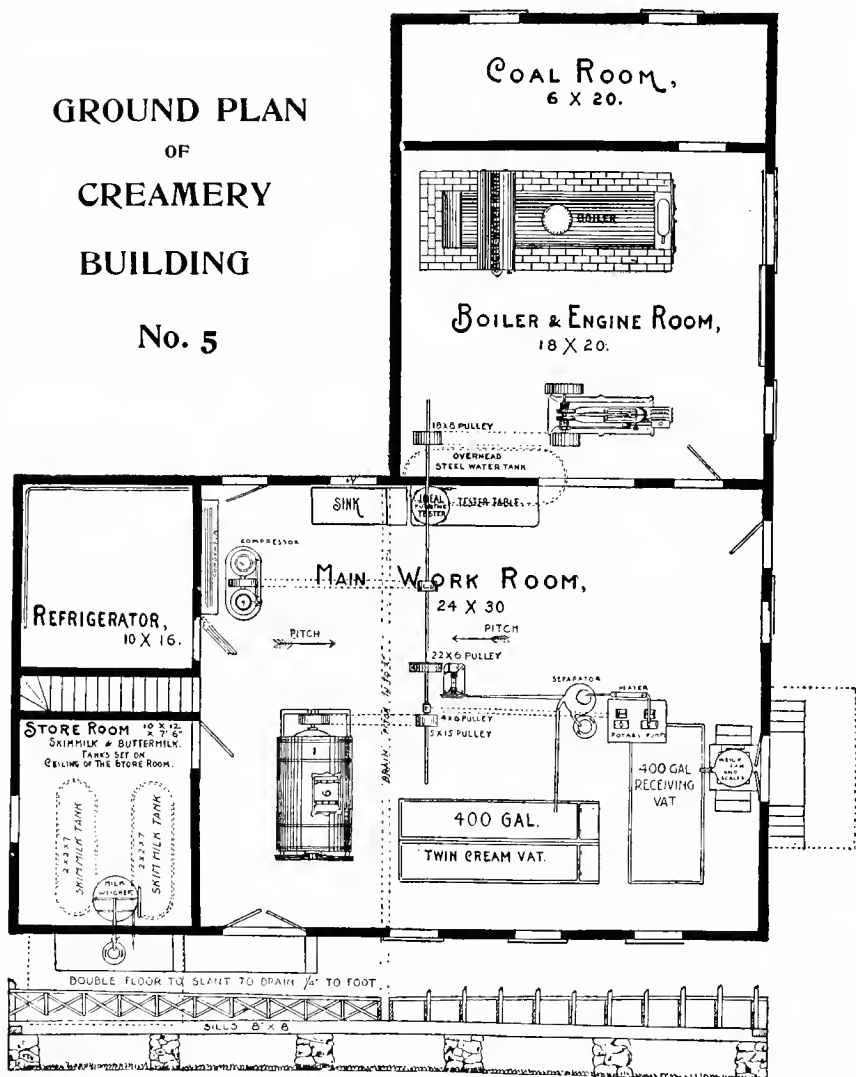
The accompanying cut shows a creamery built on our plan No. 5, ground plan of which is shown on page 97.

We can recommend it for neatness, convenience and economy of space and cost.

The cost of a building built on this plan varies from \$600 to \$900, according to the kind of material in the locality in which it is erected.

GROUND PLAN OF CREAMERY BUILDING

No. 5



The accompanying cut shows ground plan for a Creamery which we devised after careful study of the subject, and from long experience we feel warranted in the assertion that for convenience in working and economy of space and cost, it could not be materially improved upon, and it has been adopted by many of our customers.

The plan shows position of machinery for a one-Separator Creamery, while there is room for the addition of two more Separators should they ever be needed.

Of course the Engine Room can be placed on either side of the Creamery, as the situation would make most convenient. A cut of complete Creamery built on this plan is shown on page 96.

We have other plans of Creameries and Skimming Stations, and we furnish to our customers detail plans, specifications and blue prints for use in building their Creamery.

COST OF A CREAMERY

The question of the cost of a Creamery is asked us many times. It is as difficult to answer exactly as the question, "what will it cost to build a house?"

It depends upon the number of cows butter is to be made from and the style and capacity of machinery.

We can give approximate figures, however, which will serve every purpose in planning.

A first-class building (not a cheap affair such as creamery organizers build) can be built at from \$800 to \$1,100. We give a good plan on pages 96 and 97.

The machinery for making butter from 300 to 500 cows, including 15-Horse Steel Boiler, 12-Horse Frost Engine, Alpha Separator of 2,500 pounds capacity, Disbrow Combined Churn and Worker, "Ideal" Milk Weigher, "Ideal" Milk Heater and all the other necessary machinery and apparatus will cost from \$1,300 to \$1,600.

If a United States, Springer, Russian or any other Hollow Bowl machine is used, the cost of the outfit would be from \$100 to \$300 less.

These figures will enable anyone to make their plans with safety.

We shall be pleased to furnish plans of buildings and complete lists of machinery to suit individual needs, on application.

CREAMERY MACHINERY

In buying machinery of any kind buy nothing but the *best*. It is economy in the long run. It is not always possible to sell the best goods at as low a price as those of inferior quality. As we are the largest manufacturers of creamery machinery in the country, however, our large production enables us to make close prices and frequently our goods will be found to cost no more, and in many cases less, than those of inferior make. Our prices are uniform and as for quality, every article is guaranteed.

We take especial pleasure in recommending the Alpha Separators, New Disbrow Combined Churns and Workers, "Ideal" Skimmed Milk Weighers, "Ideal" Testers, "Ideal" Milk Heaters and our Steel Boilers and Frost Engines. We never offer useless or obsolete articles and every creamery we equip is done on honor.

We have furnished the equipment for hundreds of creameries throughout the country, and have scores of testimonial letters expressing the pleasure of the owners with the quality and price of our goods and reliability of our statements.

Should you desire to communicate with some one near you who has dealt with us, please write us; no doubt we can give you the address of some one whom you may know by reputation, if not personally.

We will be glad to have intending purchasers see or write to any creamery we have ever equipped to ascertain the satisfaction we have been able to give in both quality and price.

Please remember we court inquiry and at all times are pleased to furnish any information in our power to aid those building creameries.

SPECIMEN OUTFIT LIST

FOR 300 TO 500 COW CREAMERY

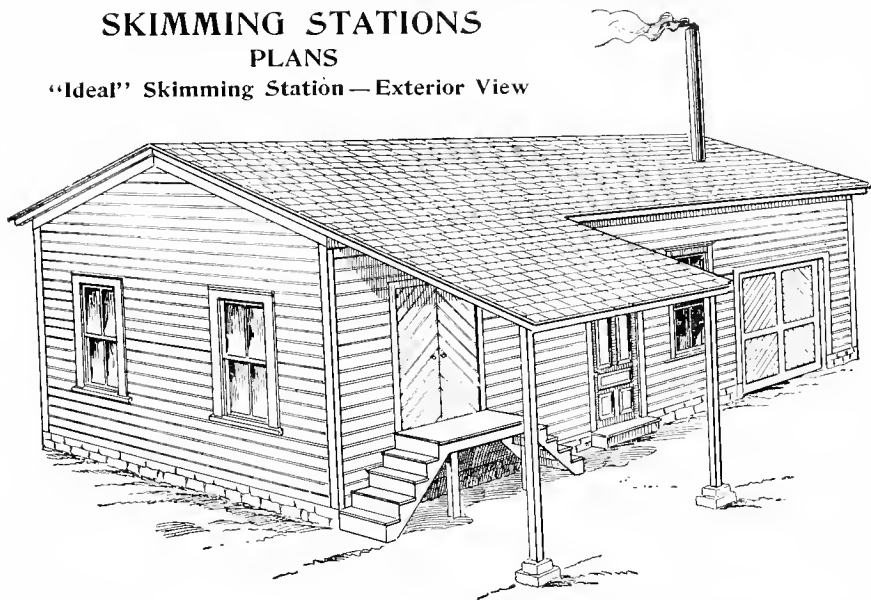
- | | |
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| <ul style="list-style-type: none"> 1 20-H. P. Half or Full Arch front tubular boiler, complete with stack. 1 Boiler Feed Pump and Heater or Injector as desired. 1 12 to 15-H. P. Horizontal Engine including Sight Feed Lubricator. 400 Fire Brick. 1 Bbl. Fire Clay. 2 No. 1 Rotary Whole and Skimmed Milk Pumps. 1 2500 lbs. capacity No. 1 Alpha Belt Separator. 1 Ideal Milk Heater. 1 Bair or Star Cream Cooler. 1 60-gal. Weigh Can with 3 in. Perfection Gate. 1 400-gallon Milk Receiving Vat. 1 300 " Cream Vat with Ice Box. 1 No. 4 Disbrow Combined Churn and Worker. 1 Portable Wash Sink, galvanized lined. 1 Vat Strainer. 1 Disbrow Churn Strainer. 1 20-Bottle (or larger if desired) Ideal Turbine Tester Complete. 1 Conductor Head. 6 Feet Conductor Pipe. 1 200-gal. Galvanized Steel Skimmed Milk Tank. 1 300-gal. Galvanized Steel Buttermilk Tank. 1 Ideal Skimmed Milk Weigher. 1 Noiseless or Penberthy Water Heater. 1 Buttermilk Strainer. 1 14-in. or 17-in. Iron Head Mop. 1 50 to 250-Patron Elgin Milk Ledger. 1 Eureka Check Register. 1 Dozen Weekly, Monthly or Semi-monthly Milk Sheets. 1 Newton Computator. 1 Ideal Test Measure (Composite). 1 Babcock Test Bottle Brush. 6 Composite Test Jar Brushes. 25 or more 1/2-pint or pint Composite Test Jars with Lightning tin top. 1 18-in. to 24-in. Butter Trier. 1 8-oz. Graduate (for Butter Color). 6 Common or Large Floating Thermometers. | <ul style="list-style-type: none"> 1 Butter Packer. 1 Dairy or New York Style Ladle. 1 Factory Ladle. 1 Canvas Apron (light or heavy weight). 1 600-lb Double Beam Platform Scale. 1 Butter Salting Scale. 5 12x1 1/4-in. Adjustable Drop Hangers. 4 1 1/8 Shaft Collars. 20 ft. 1 1/8 Main Shafting. 10 " " Counter " 20 " 3/4-in. 4-ply Steam Hose. 30 " 3/4-in. 3-ply Conducting Hose. 1 Belt Awl. 100 ft. Cut Rawhide Lacing. 5 lbs. Italian Hemp Packing. 1 lb. each Piston and Cylinder Packing. 1 Spiral Engineers' Favorite or Steam Flue Cleaner. 1 Coal Scoop. 1 Poker. 1 Enterprise or Malleable Pipe Vise. 1 Barnes, Stanwood or Saunders Pipe Cutter. 1 Pair Common or Adjustable Pipe Tongs. 1 Stilson, Trimco, or B. & C. Pipe Wrench. 1 Coe or Alligator Wrench. 1 Zinc, Steel or Brass Oilier. 1 Well Pump, pulley or steam style as desired, with necessary pipe rod and cylinder. Necessary connection and exhaust pipe (black iron or galvanized) for boiler, engine, pumps, wash sink and buttermilk vats, etc. Necessary Check, globe and angle valves for above connections. Necessary Ells, Tees, Unions, Nipples, Reducers, Couplings, Plugs, etc. for above connections. 1 Main Drive Wood Split Pulley. 1 " Shaft " " " 1 Counter " " " " 2 Small Pumps " " " 1 Well Pump " " " 1 Churn & Worker " " " 1 Separator " " " |
|--|---|

1 REFRIGERATING PLANT.

The above is a general list for creamery, and is altered to suit needs of purchaser and demands of location and building specifications. It is intended to give a general idea of apparatus necessary, and will be completed and thoroughly itemized on application. Complete outfit for above sized creamery can be furnished for from \$1,200.00 to \$2,000.00, exclusive of Refrigerating Plant. Write us for full particulars, plans, specifications and estimates.

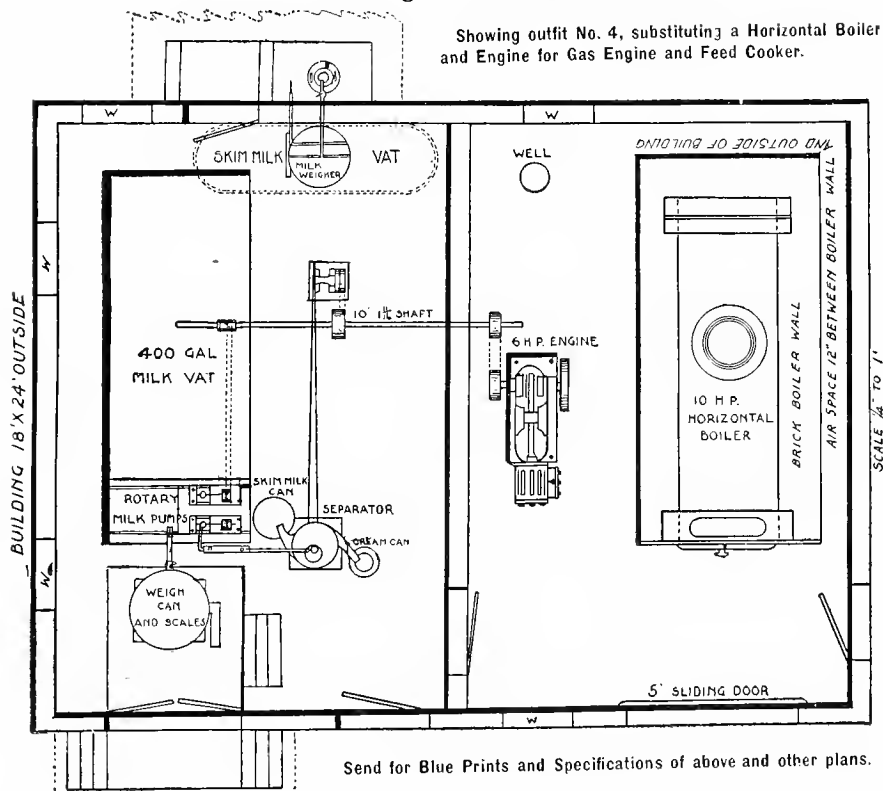
SKIMMING STATIONS PLANS

"Ideal" Skimming Station—Exterior View



"Ideal" Skimming Station—Ground Plan

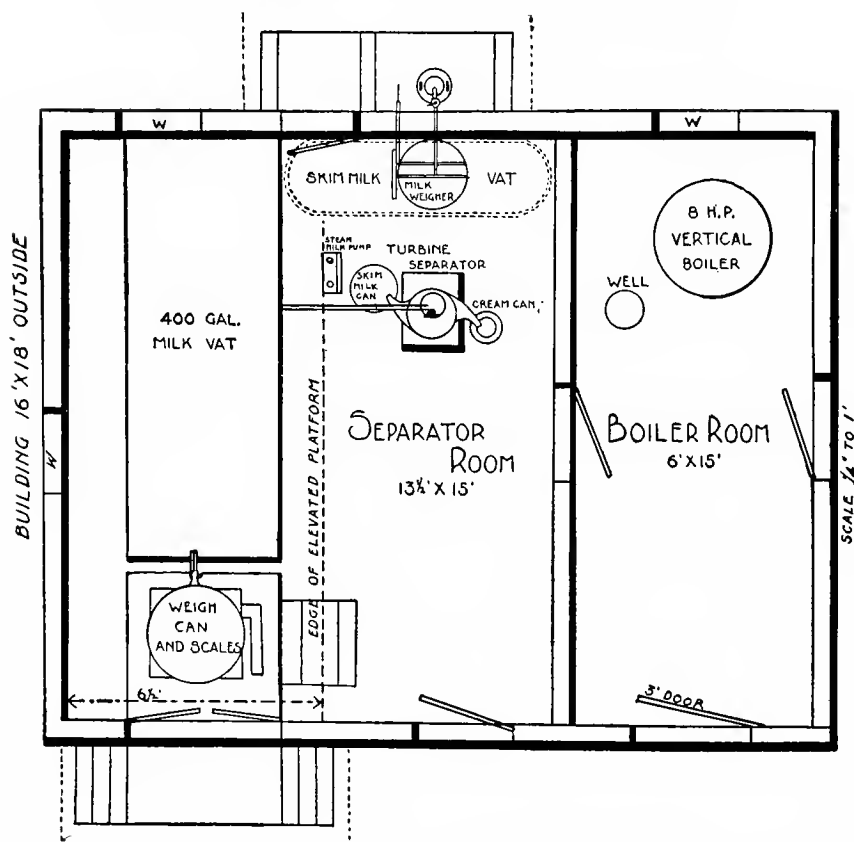
Showing outfit No. 4, substituting a Horizontal Boiler and Engine for Gas Engine and Feed Cooker.



Send for Blue Prints and Specifications of above and other plans.

SKIMMING STATIONS

"IDEAL" SKIMMING STATION. GROUND PLAN SHOWING OUTFIT No. 1



SKIMMING STATION OUTFITS

No. 1

- | | |
|---|--|
| 1 No. 1 Alpha Turbine Separator, actual capacity 2,500 lbs. per hour. | 1 10-Gal. Skimmed Milk Can. |
| 1 10-H. P. Horizontal or Vertical Boiler with smoke stack, injector and fire brick. | 12 20-Gal. Union Cream Carrying Cans. |
| 1 400-Gal. Milk Receiving Vat. | 1 10-foot Bair Cream Cooler. |
| 1 60-Gal. Weigh Can with three Perfection Gates | 1 "BB" 350-Gal. capacity Moore Deep Well Pump with Cylinder. |
| 1 5-Beam 600-lb. Scale, with or without wheels. | 1/2 barrel Fire Clay. |
| 1 Light or Heavy Conductor with 6 ft of trough. | 1 3/4-inch XL Ejector. |
| 1 "Ideal" Skimmed Milk Weigher and galvanized steel tank with connections. | 4 dozen 1-pint Composite Test Jars. |
| 1 Portable Galvanized Iron Lined Wash Sink. | 1 "Ideal" Test Measure. |
| 1 "Ideal" Milk Heater. | 1 Marsh Steam Creamery Milk Pump. |
| | 1 20-bottle "Ideal" Turbine Tester, complete. |

All necessary pipe, fittings and valves.

OUTFIT No. 2

- | | |
|---|---|
| <ul style="list-style-type: none"> 1 No. 1 Alpha Turbine Separator, actual capacity, 2,500 lbs. per hour. 1 8-H. P. Economizer Boiler, complete with smoke stack and injector. 1 400-gal. Milk Receiving Vat. 1 60-gal. Weigh Can, with 3-in. Perfection Gate. 1 Light or Heavy Conductor Head with 6 feet of trough. 1 Double Beam Scale, 600 lbs. capacity, with or without wheels. 1 Ideal Skimmed Milk Weigher and Galvanized Steel Tank with connections. 1 Ideal Milk Heater. | <ul style="list-style-type: none"> 1 "BB" 350-gal. capacity Moore Deep Well Pump with cylinder. 12 20-gal. Union Carrying Cans. 1 Portable Galvanized Iron Lined Wash Sink. 1 10-gal. Skimmed Milk Can. 1 ¾-in. XL Ejector. 1 10-ft. Bair Cream Cooler. 4 Doz. 1-pt. Composite Test Jars. 1 Ideal Test Measure. 1 Marsh Steam Creamery Milk Pump, single cylinder. 1 20-bottle Ideal Turbine Tester, complete. <p style="margin-left: 40px;">All necessary pipe, fittings and valves.</p> |
|---|---|

OUTFIT No. 3

- | | |
|---|---|
| <ul style="list-style-type: none"> 1 10-H. P. Submerged Flue Upright Boiler complete with smoke stack, inspirator and fittings. 1 No. 1 Alpha Turbine Separator, actual capacity 2,500 lbs. per hour. 1 400-gal. Milk Receiving Vat. 1 60-gal. Weigh Can with 3-in. Perfection Gate. 1 Light or Heavy Conductor Head with 5 feet of trough. 1 Double Beam Scale, 600 lbs. capacity, with or without wheels. 1 Ideal Skimmed Milk Weigher, with Galvanized tank and connections. 1 10-gal. Skimmed Milk Can. | <ul style="list-style-type: none"> 1 Ideal Milk Heater. 1 "BB" 350-gal. capacity Moore Deep Well Pump with cylinder. 12 20-gal. Hodo Cream Carrying Cans. 1 Portable Galvanized Iron Lined Wash Sink. 1 ¾-in. XL Ejector. 1 10-ft. Bair Cream Cooler. 1 20-bottle Ideal Turbine Tester, complete. 4 Doz. 1-pt. Composite Test Jars. 1 Ideal Test Measure. 1 Marsh Steam Creamery Pump, single cylinder. <p style="margin-left: 40px;">All necessary pipes, fittings and valves.</p> |
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OUTFIT No. 4

- | | |
|--|---|
| <ul style="list-style-type: none"> 1 4-H. P. Lambert Improved Gas or Gasoline Engine. 1 No. 2 Ideal Feed Cooker and Boiler, complete. 1 No. 1 Alpha Belt Separator, actual capacity 2,500 lbs. per hour. 1 300-gal. Milk Receiving Vat. 1 60-gal. Weigh Can with 3-in. Perfection Gate. 1 Light or Heavy Conductor Head and 5 ft. of trough. 1 Double Beam Scale, 600 lbs. capacity, with or without wheels. 1 Ideal Skimmed Milk Weigher, Galvanized steel tank and connections. 1 Covered Crank Force and Suction Pump. | <ul style="list-style-type: none"> 1 Ideal Milk Heater. 12 20-gal. Hodo Cream Carrying Cans. 1 Portable Galvanized Iron Lined Wash Sink. 1 10-gal. Skimmed Milk Can. 1 ¾-in. XL Ejector. 1 10-ft. Bair Cream Cooler. 4 Doz. 1-pt. Composite Test Jars. 1 Ideal Test Measure. 1 No. 1 Rotary Force Pump. 4 Wood Split Pulleys. 12 ft. 1 ½-in. Shafting. 2 1 ½-in. Shaft Collars. 3 12 x 1 ½-in. Adjustable Drop Hangers. <p style="margin-left: 40px;">All necessary pipe, fittings and valves.</p> |
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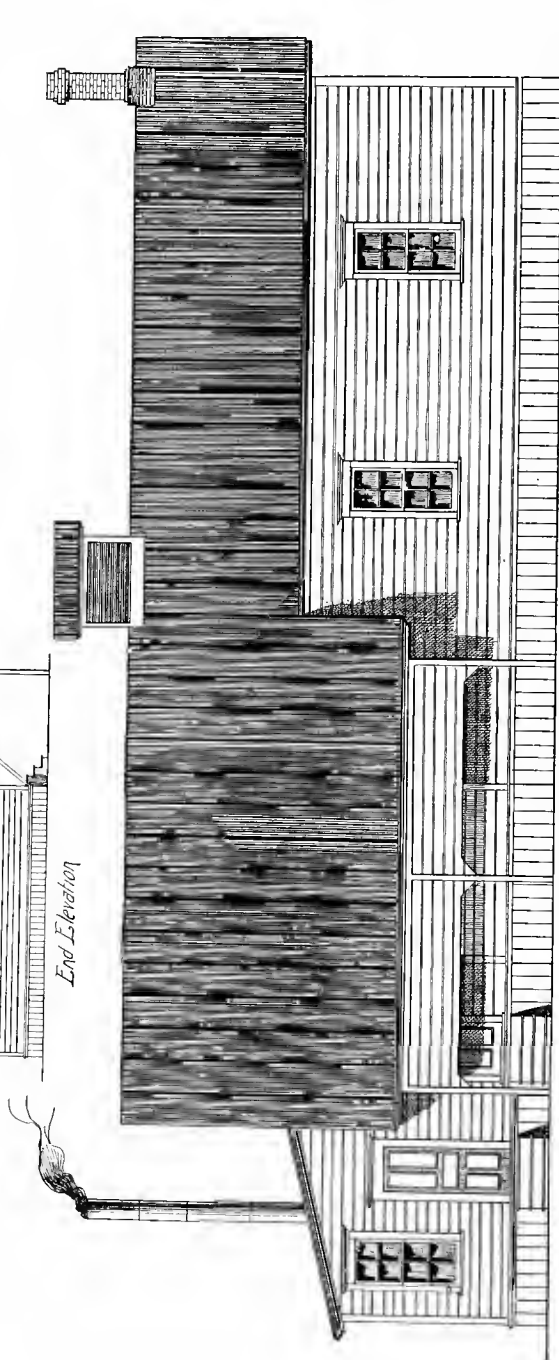
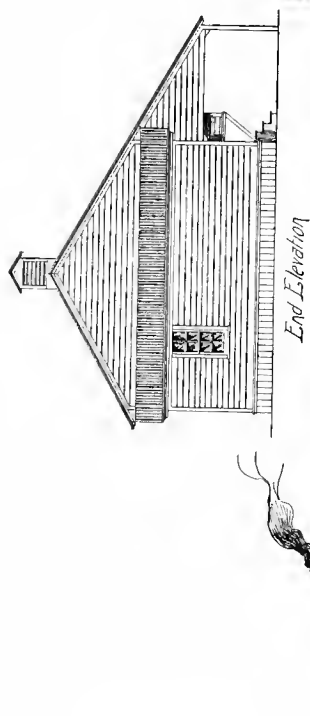
WRITE FOR PRICES

CHEESE FACTORY

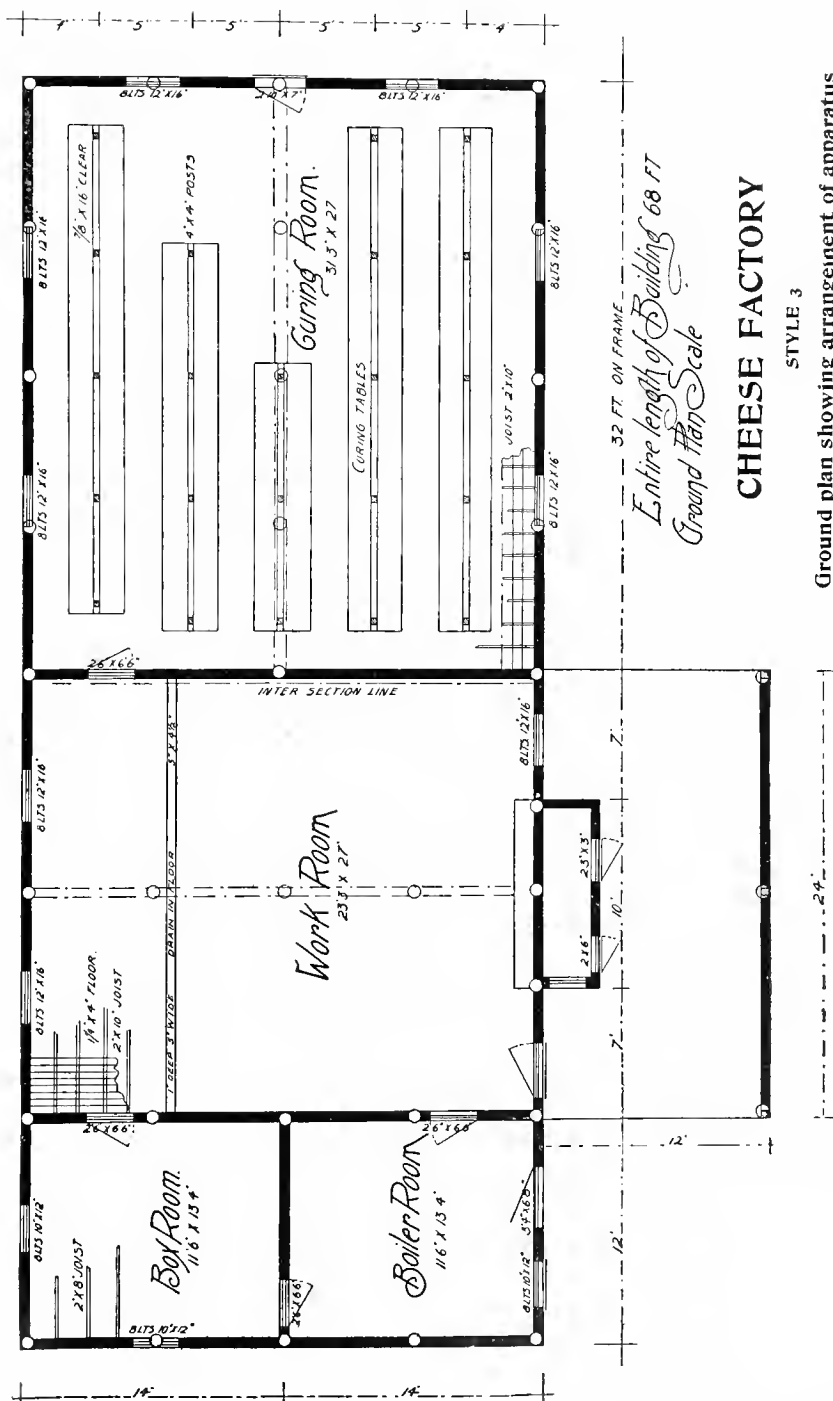
STYLE 3

EXTERIOR VIEW

Send for Blue Prints and Specifications of this and other styles.



Side Elevation. Scale



LIST OF APPARATUS AND SUPPLIES FOR CHEESE FACTORY No. 3

To make Full Cream Cheese from the Milk of 500 to 800 cows.

MACHINERY

- | | |
|--|--|
| 1 8 H. P. Economizer Boiler, complete with all fittings as per page 11 of our large catalogue. | 6 10-in. Flange Thermometers. |
| 1 5-Beam 600-lb. Scale (Ideal or Fairbanks), with or without wheels. | 1 No. 5 "Sure Grip" Tackle Block. |
| 1 $\frac{1}{2}$ -oz. x 240-lb. S. B. Tin Scoop Common Union Scale. | 1 Set Milk Can Hooks, cross bar, and 25 ft. $\frac{3}{4}$ -in. rope. |
| 1 Square Pan Spring Balance Salting Scale (20 lbs. x 2 oz.). | 1 Speed Knife. |
| 1 80-gal. Weigh Can. | 1 New Style, 12-bottle Roe Pattern Hand Tester. |
| 1 Light or Heavy Conductor Head and 10 feet of trough. | 1 Double Milk Slate. |
| 2 600-gal. Channeled copper-bottom Cheese Vats. | 1 Elgin Pattern Cheese Box Machine, 15-in. drum and table. |
| 1 10-ft. Curd Sink, copper-lined. | 1 Hygrometer. |
| 1 Pohl's Automatic Curd Agitator. | 1 No. 3 Chief Injector. |
| 1 New Style Pohl Curd Mill and Salter. | 1 Little Detective. |
| 1 Helmer Continuous Pressure Steel Frame Gang Cheese Press. | 1 Marshall Rennet Test. |
| 15 15-in. x 7-in. Tinned Gang Press Hoops. | 2 Flat-sided Curd Pails. |
| 1 8-in. x 20-in. Horizontal Curd Knife. | 1 Spence Milk Scope. |
| 1 14-in. blade x 20-in. Perpendicular Curd Knife. | 25 lbs. Phospho. |
| 1 Long-handled Gallon Dipper. | 1 Curd Rake. |
| 1 Short-handled Gallon Dipper. | 1 Cheese Box and Shelf Scraper with $2\frac{1}{2}$ -in. cutter. |
| 1 Strainer Dipper. | Steam heating coils for curing room, with all necessary connecting pipes, valves and fittings. |
| 1 Plain Siphon. | 90 ft. $\frac{3}{4}$ -in. Steam Pipe. |
| 1 Half-round Channel Bottom Whey Strainer, with spout. | 10 $\frac{3}{4}$ -in. Elbows. |
| 2 Tin Curd Scoops. | 6 $\frac{3}{4}$ -in. Couplings. |
| 2 8-oz. Glass Graduates. | 5 $\frac{3}{4}$ -in. J. D. Globe Valves. |
| 1 6-in. x $\frac{5}{8}$ -in. Cheese Trier, flat handle. | 1 $\frac{3}{4}$ -in. J. D. Check Valve. |
| 1 Tinned Cheese Knife. | 1 Coal Scoop. |
| 1 Set Months and Dates. | 1 Poker. |
| 2 14-in. Wood-head Mops. | 3 ABC Brushes. |
| 1 Combined Floor Brush and Mop. | 2 $2\frac{1}{2}$ -ft. x $2\frac{1}{2}$ -ft. x 8-ft. Galvanized Steel Whey Tanks. |
| 1 Set Test Instruments with Quevennes Lactometer. | 1 Yates Whey Measurer. |
| | 1 $1\frac{1}{2}$ -in. Blakesley Steam Jet Pump with pipe and connections for same. |
| | 1 Office Desk. |
| | 1 Office Chair. |
| | 1 "Webb" Adding Machine. |

SUPPLIES

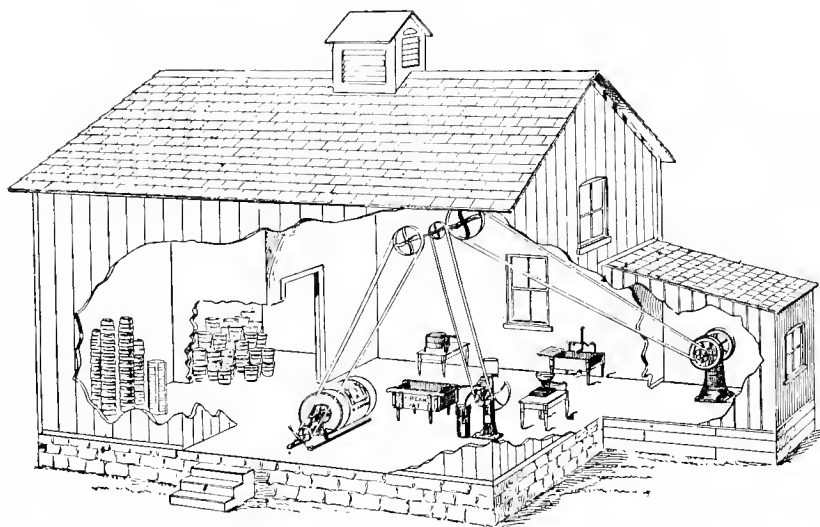
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|---|---|
| 5 $\frac{1}{2}$ yds. 76-in. Strainer Cloth. | 2 Gallons Hansen's Cheese Color. |
| 1,000 $14\frac{1}{2}$ -in. x 10-in. Taper Excelsior Bandages. | 1 60-patron Roe Cheese Factory Book. |
| 1,000 14-in. Cloth Circles. | 1 Bundle Scale Boards (whitewood). |
| 8 Gallons Hansen's Rennet Extract in bottles. | 100 Sets 15-in. x 8-in. Cheese Box stock. |
| | 50 15-in. Press Cloth Circles. |
| | 5 lbs. BB Preservaline. |

CANS

- | | |
|-------------------------|--------------------------|
| 15 20-gallon Hodo Cans. | 15 20-gallon Union Cans. |
| 25 30 " " " | 25 30 " " " |

FARM DAIRY BUILDING

For a Dairy of 20 to 30 Cows, 14 x 22



DAIRY OUTFITS

NO. 1

For 8 to 20 Cows

Hand Separator, capacity, 200 pounds per hour.
40-Gallon Churn.
Complete

Butter Worker.
4-Bottle Babcock Tester
\$90 00

NO. 2

For 20 to 75 Cows. 1-H. Tread Power

400 pounds per hour Separator.
60-Gallon Churn.
Power Butter Worker.
Complete

8-Bottle Tester.
50-Gallon Cream Vat.
Shafting, Pulleys and Belting.
\$275 00

NO. 3

For 75 to 100 Cows. Steam Boiler and Engine. 2-H. Power

600 pounds per hour Separator.
Combined Churn and Butter Worker.
12-Bottle Babcock Tester.
Complete

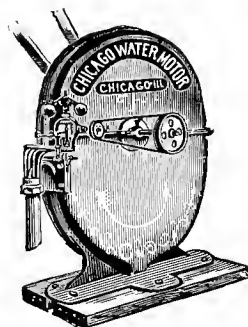
100-Gallon Vat.
Shafting, Pulleys and Belting,
\$425 00

We make a specialty of fitting out private dairies. We handle and manufacture nothing but first-class goods, and guarantee satisfaction.

Write for Net Prices before Buying.

THE CHICAGO WATER MOTOR

One which does the greatest amount of work with the use of the lowest pressure of water, and which is best adapted for running both cheaply and efficiently: Separators, Printing Presses, Coffee Mills, Church Organs, Drug Mixing Machines, Elevators, Sewing Machines, Dental Contrivances, Ice Cream Freezers, Ventilating Fans, etc.



ADVANTAGES OF WATER MOTOR OVER ANY OTHER POWER.

Economy, Convenience, Cost of Running, No Noise, No Repairs, No Dirt or Odor, No Attendance, No Feature of Danger, No Extra Insurance, Small Floor Space.

SPECIAL NOTICE

IN MAKING INQUIRIES PLEASE NOTE THE FOLLOWING POINTS:

State, if possible, the amount of actual horse power required, or else what mechanism you wish the Motor to run:

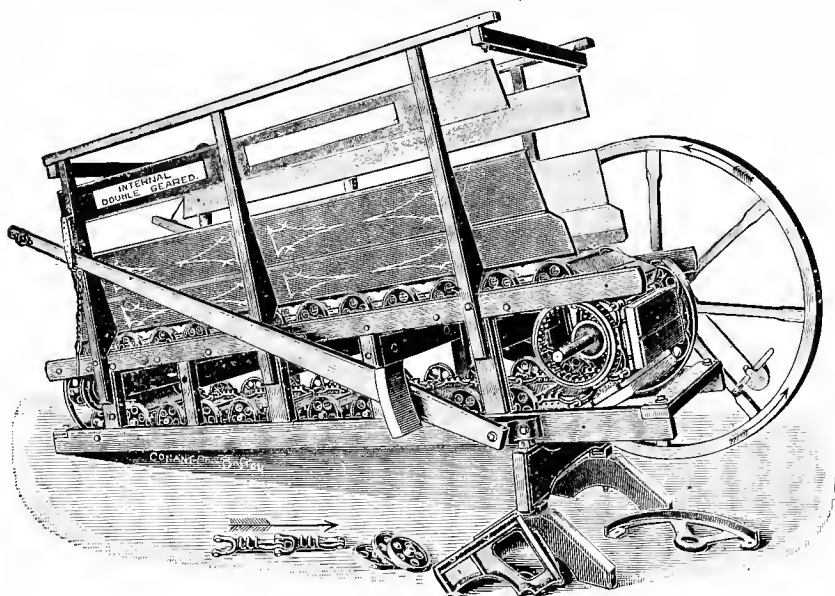
Give us, if possible, the number of pounds water pressure at point where you expect to connect Motor. It must be borne in mind that the pressure is greater on large mains in thoroughfares than it is on side streets and at points distant from the source of water supply. If unable to name amount of pressure, name number of feet fall from reservoir or stand pipe.

PRICE LIST OF WATER MOTORS.

No.		PRICE.
8.	With pulley	\$ 1. 00
8.	With pulley and foot valve, suitable for sewing machines.....	15 00
9.	With pulley for running one Rotary Fan	22 00
10.	With pulley, jet and nozzle	35 00
11.	With pulley, jet and nozzle	70 00
11.	Double with pulley, jet and nozzle.....	100 00
12.	With pulley, " " "	125 00
12.	Double with " " " "	170 00
13.	With pulley, " " " "	175 00
13.	Double, with " " " "	275 00
15.	Double, with " " " " extra strong for very heavy work.	350 00

TREAD POWERS
THE NEW
INTERNAL=DOUBLE=GEARED RAILWAY HORSE POWER

(PATENT APPLIED FOR)



Interior view showing gearing.

A radically new departure in horse-tread power construction, combining all the advantages of double and triple gear with single shaft, thereby effecting a marked diminution of friction. Further material saving of friction and consequent gain in power can be made by the use of center draft lag-irons. These are of malleable iron and practically unbreakable, thus almost entirely eliminating an item of repairs, which in other makes of power, is a never-ending source of expense and vexation.

SIZES AND PRICES

					LIGHT	HEAVY
1-horse power, with automatic speed regulator.....					\$ 80 00	\$100 00
2	"	"	"	"	125 00	140 00
3	"	"	"	"	160 00	200 00
4	"	"	"	"	225 00	

Mounting on wheels extra.

“BABY” JUNIOR

This machine is an exact fac simile of the "Baby" only smaller and lighter, and is designed to be run by small pony, donkey, calf, sheep or large dog.

PRICE

Including speed regulator and pulley	\$50.00
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For Specifications see page 310

SPECIFICATIONS OF ST. ALBANS TREAD POWERS.

STYLE.	Weight.	Revolutions per minute. Horses walking 12 miles per hour.	† Size of Band Wheel.		Length of Shaft.	DIMENSIONS.				
			Diam-eter.	Width of Face.		Length of Frame.	Width of Frame.	Width between top of side boards.	Length of Tread.	Width of Tread.
Baby Jr. Power.	500	*103	30 in.	3½ in.	2 ft., 6½ in.	7 ft.	1 ft., 7 in.	2 ft., 2 in.	5 ft., 4 in.	1 ft.
Light 1-Horse Power.	900	103	48 in.	4½ in.	3 ft., 6 in.	8 ft., 8 in.	2 ft., 1 in.	2 ft., 7½ in.	7 ft., 8 in.	1 ft., 5 in.
Heavy 1 " "	1,150	*103	48 in.	4½ in.	3 ft., 6 in.	9 ft., 9 in.	2 ft., 5 in.	2 ft., 9 in.	8 ft.	1 ft., 9 in.
" 2 " "	1,750	103	48 in.	4½ in.	5 ft., 7½ in.	9 ft., 9 in.	4 ft., 8 in.	5 ft.	8 ft.	3 ft., 11 in.
" 2½ " "	2,100	103	48 in.	4½ in.	6 ft., 1¼ in.	10 ft., 6 in.	5 ft., 2 in.	5 ft., 6 in.	8 ft., 8 in.	3 ft., 11 in.
" 3 " "	2,800	103	60 in.	5 in.	7 ft., 9 in.	10 ft.	6 ft., 9 in.	7 ft., 2 in.	8 ft.	4 ft., 5 in.
" 3½ " "	3,150	103	60 in.	5 in.	10 ft., 3 in.	10 ft.	7 ft., 3 in.	7 ft., 8 in.	8 ft.	6 ft., 6 in.
" 4 " "	3,900	103	60 in.	5½ in.	10 ft., 6½ in.	10 ft.	9 ft., 6 in.	9 ft., 10 in.	8 ft.	8 ft., 9 in.

* When these powers are used for running DeLaval Baby Separators belted direct, speed of power shaft is adjusted to 85 revolutions per minute, and 7-inch pulley is sent with power, free of charge.

For other makes of Separators, special information is required regarding diameter and speed of pulley on same. If power is to be belted to overhead shafting, we send 10-inch pulley without extra charge.

† Special sizes made to order.

If possible, when ordering power, let us know what machines are to be run by it. We can frequently make useful suggestions in this connection.

† EXTRA SIZE.—Only recommended when large horses, weighing 1,600 or 1,700 pounds each, are to be used. Furnished under these conditions at same price as two-horse power of standard size.

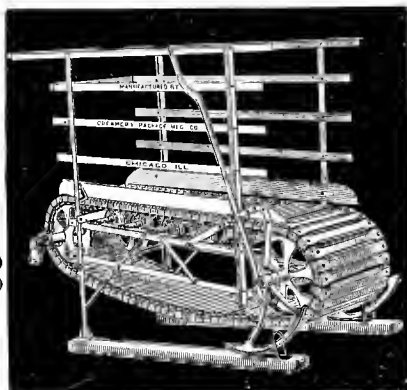
DOG POWER

NEW STEEL FRAME

Made single and double. Perfect lever device for changing the pitch of apron according to the weight of animal. Nicely finished and painted. Furnishes ample power for cream separators, churns, mills, shellers, small machines and pumping water. Furnished with tumbling rod, slip knuckle, pulley and balance wheel, any size.

PRICES.

Single	\$20 00
Double	26 00



"ENTERPRISE"

PRICE.

No. 0 power, as per cut.....	\$12 00
No. 1 " kind required to run dash churn.....	15 00

STRAINERS

MORE'S "PYRAMIDAL"

We sell large numbers of these to Chicago milk dealers, and they all say: "I wish my farmer used them." The brass straining cloth is of so fine a mesh that no cheese cloth is required, and yet the dirt never settles where it can clog.

PRICES.

Strainer, with rest or funnel.....	each, \$1 50
" " " and "	" 1 65
Extra rests or funnels.....	" 15
" strainers.....	" 40



"COMMON" MILK CAN

This is made of very heavy tin. Has a combined wire strainer and flannel cloth strainer holder. It will fit a milk can, Cooley or the Common Sense Setters.

PRICE.

Each.....	\$1 00
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"LAKIN" BUTTERMILK

Especially adapted for dairy use.

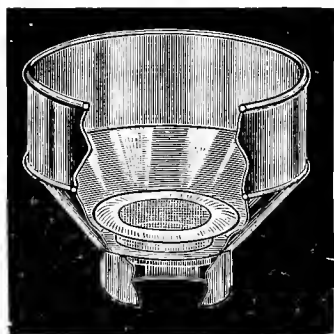
PRICES.

No. 1. Family size.....	each, \$1 50
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STRAINERS

THE ELGIN STRAINER



The construction of this strainer is such that there is no trouble with the clogging of the sieve. All of the sediment is collected underneath the convex disc and remains there until cleaned. This disc which has the sieve in the top fits into a sleeve in the bottom of the strainer so that it can be easily removed for cleaning.

The Elgin is a perfect strainer.

Price each \$2.50

SMITH'S COMBINED FUNNEL AND STRAINER

Patented Sept. 21, 1897.

Made of first-class material and on sanitary principles.

Strainer wire cone shaped, not flat, hence it will not clog, all sediment falling to outer edge of cone and straining surface greatly enlarged. Cone held in place by collar.

Threaded screw on bowl is of solid metal, and will not rust, and is perfectly smooth on inner surface. Easily cleaned.

Extra ring with large strainer to hold cloth.

Small dairy strainer has funnel attachment, also a fruit jar filling attachment.

SIZES.

Large Dairy Strainer, 2½ gallons; diameter top, 17½ inches; diameter bottom, 4¼ inches; depth, 8 inches.

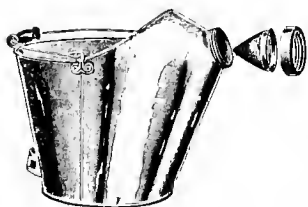
Small Dairy Strainer, 1 gallon; diameter top, 9½ inches; diameter bottom, 2½ inches; depth, 6 inches.

PRICES.

Large size, complete.....	each, \$1 25
Small ".....	" 75
Extra cone wire, large.....	" 25
" " small.....	" 15
Extra collars, large.....	" 25
" " small.....	" 15
" Ring.....	" 10



SMITH'S ADJUSTABLE STRAINER PAIL



Constructed on the same principles as the dairy strainer; made in two sizes. No clogging, perfect work.

PRICE.

12-quart.....	each, \$0 85
14 ".....	" 1 00
Extra cone wire.....	" 20
Extra collars.....	" 10

PAILS.



"IRONCLAD"

"IRONCLAD" TIN

10-quart.....	each, \$0 60
12 "	" 65
14 "	" 70

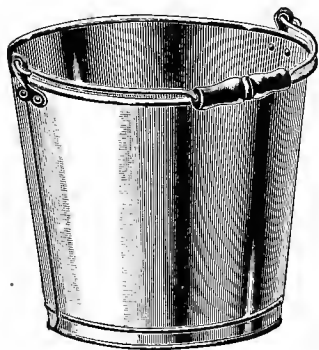
RETINNED "SEAMLESS" FLARING

WITH PATENT SEAMLESS FOOT.

Superior to any other milk pail on the market.

6-quart, 9 x 6 $\frac{3}{4}$ inch.....	each, \$0 60
8 " 9 $\frac{1}{2}$ x 7 "	" 70
10 " 10 $\frac{1}{2}$ x 8 "	" 80
12 " 12 $\frac{1}{2}$ x 9 "	" 90
15 " 12 x 10 "	" 1 00
20 " 13 x 11 "	" 1 25

"IDEAL" MILK PAILS.



"IDEAL"



"SEAMLESS"

This Pail is made very strong, of XXXX tin, the top and bottom being heavily re-inforced with wire. The bottom is made of No. 22 galvanized iron. Can be furnished with tin bottoms if desired.

PRICES.

10-quart..each,	\$0 70	per doz.,	\$7 20
12 " .. "	80	" "	8 40
14 " .. "	90	" "	9 60

"PERFECT"

PAIL, MILK STOOL AND STRAINER IN ONE.

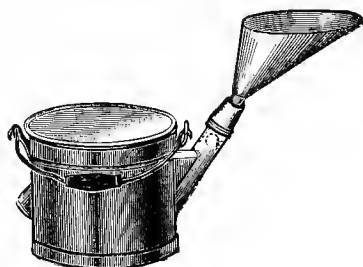
The milker sits on the pail and milks into the funnel. Cannot be kicked or knocked over by the cow.

Price, each.....\$ 2 00

"GEM"

WITH DETACHABLE STRAINERS.

10-quart.....	each, \$0 60
12 "	" 70
14 "	" 80



"PERFECT"

WHAT THE "ALPHA," DE LAVAL, "BABY" OR "DAIRY" CREAM SEPARATORS

WOULD DO FOR YOU



1. Save 10 to 50 per cent. in skimming.
2. Save 5 to 10 per cent. in churning.
3. Increase butter value 5 to 50 per cent.
4. Save time and labor.
5. Save ice and water.
6. Insure purity of product.
7. Remove tuberculosis and disease germs.
8. Give a much superior cream.
9. Give cream of any desired density.
10. Give warm, fresh, sweet skimmed milk.
11. Obviate "scours" in calves.
12. Give the best aeration.
13. Do away with taints and odors.
14. Enhance keeping qualities.
15. Save women's and house work.
16. Save one-half time in churning.
17. Save storing and handling of ice.
18. Save milk and ice-houses.
19. Save multitude of utensils.
20. Save washing and care of utensils.



SAVE IN ACTUAL CASH

RESULTS ALONE AT LEAST \$10 PER COW PER YEAR AND
MAKE YOUR DAIRY WORK A SOURCE OF PROFIT
AND SATISFACTION INSTEAD OF

DRUDGERY



THE DE LAVAL "DAIRY" CREAM SEPARATORS



The purpose of the Cream Separator is the quick and complete separation of cream from milk in the most practical and profitable manner possible.

NATURAL FORCES ONLY

Centrifugal separation is the application of mechanical science to the natural laws governing the creaming of milk. Centrifugal force is the natural force which is generated by high velocity, or, in other words, rapid revolution. When applied to liquids or other substances of different specific gravity, or weight, centrifugal force greatly intensifies such differences, drawing the lighter particles to the center of motion and driving the heavier ones to the periphery or outer circle.

That which nature does imperfectly and with a varying degree of effectiveness in the old way, by reason of the difference in specific gravity or weight between the cream or fat particles and the other parts of milk, as utilized in the many different forms of setting appliances, the Cream Separator, by the employment of centrifugal force, quickens, makes much more thorough, and improves in every respect. Hence, while the process is seemingly mechanical, it is in reality but the addition of centrifugal force to gravity, or the uses to two natural forces combined instead of one—in conjunction with the features of mechanical construction necessary to make the process continuous and practically instantaneous.

The development of these machines from the original crude models, although not rapid, has been continuous. The various stages it is unnecessary to trace here. They are a part of the history of the dairying industries.



NEW TWENTIETH CENTURY STYLES, CAPACITIES, PRICES, ETC.



September 1, 1899, marked the introduction of the Improved 20th Century "Baby" or "Dairy" sizes and styles of "Alpha" De Laval Cream Separators. These improvements denote another advance in centrifugal cream separator construction and efficiency. Great as has been the universally conceded superiority of the De Laval machines heretofore, the standard is now raised still higher. As near practical perfection as have been the De Laval Separators the past year, the latest improvements make them still better, until it is difficult today to perceive the possibilities of further improvement.

There has been a two-fold purpose upon the part of the De Laval makers in this respect. In the first place, they have had their skilled experts at work for three years to devise every conceivable means of bettering their machines, with which to fittingly celebrate the trade opening of the new century. Following precedent in the development of the De Laval machines, no expense has been spared to this end. Nor has cost of production been considered in the determination of the makers to give the 20th Century purchasers of a De Laval Separator as nearly perfect a machine for the purpose as twenty years of experience could devise and the finest shops of the kind in the world produce. That this result has been handsomely achieved will be instantly apparent to any one familiar with cream separators on seeing the new machines. And when it comes to operating one of them the previous user of separators will readily find that the 20th Century machines are in a class by themselves in efficiency and completeness, while the longer he uses one of them the greater will be his appreciation of its superior practicability and durability.

Improved "Humming Bird" No. 0, De Laval Cream Separator

Household and Dairy Style



Now made with Crank Gear. "Alpha" or "Disc" bowl type

ACTUAL CAPACITY, 175 LBS. PER HOUR

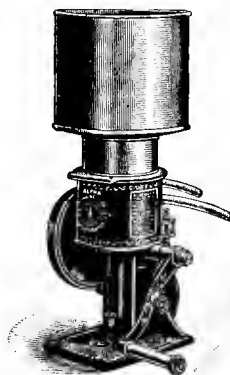
PRICE, \$50.00

The "Humming Bird" or No. 0 is the smallest of the "Baby" machines, and is of the improved "Alpha" disc bowl type. It possesses all the advantages of the larger sizes of "Alpha" machines, and is designed for popular household and small dairy use, from the family buying its milk and wishing to turn part of it into cream or butter as wanted, to the private dairy or farmer having less than six to eight cows.

It has heretofore been made with a ratchet gear, as shown in cut, but the latest improved type is made with a crank-turning gear similar to the other sizes of Baby machines. The new machine is much stronger and more substantial in every respect. It is extremely easy of operation, being easily capable of use altogether by women and children.

CRANK "HUMMING-BIRD" DE LAVAL CREAM SEPARATOR

(New Style No. 0)



("Alpha" or "Disc" Bowl Type)

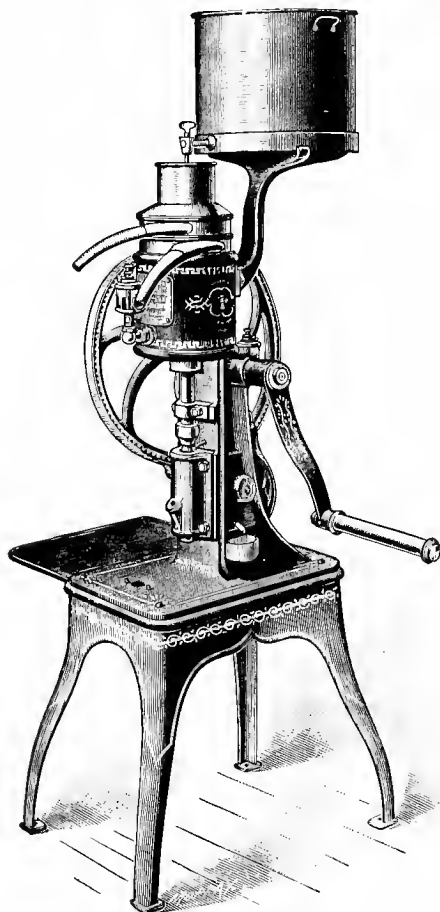
Actual capacity, 225 pounds per hour.

Price \$65.00

The Crank "Humming-Bird" or New Style "Baby" No. 0 is a later and somewhat improved pattern of the "Humming-Bird" size of machine, being of gear construction, and built for crank operation upon practically the same lines as the larger "Baby" machines. The 20th Century Crank "Humming-Bird" is made stronger in several structural respects than previous machines of the same style. It possesses every advantage and improvement of the larger machines, and is meeting with a largely increasing sale, both to small dairy farmers having less than 6 or 8 cows and to owners of 1 or 2 cows for private use, and gradually into city and village homes where milk is brought for household uses. There is also a constantly increasing use of this machine by small hotels and restaurants, that cream of the best quality may be readily made as wanted, and the surplus of milk turned into superior butter. The Crank "Humming-Bird" is most extremely easy of operation, the operator sitting in running it, almost without effort.

IMPROVED "BABY" No. 1.

INCREASED CAPACITY

DE LAVAL CREAM SEPARATOR

Inclusive of handsome Iron Setting Stool

ACTUAL CAPACITY, 325 LBS. PER HOUR

"Alpha" or "Disc" bowl type

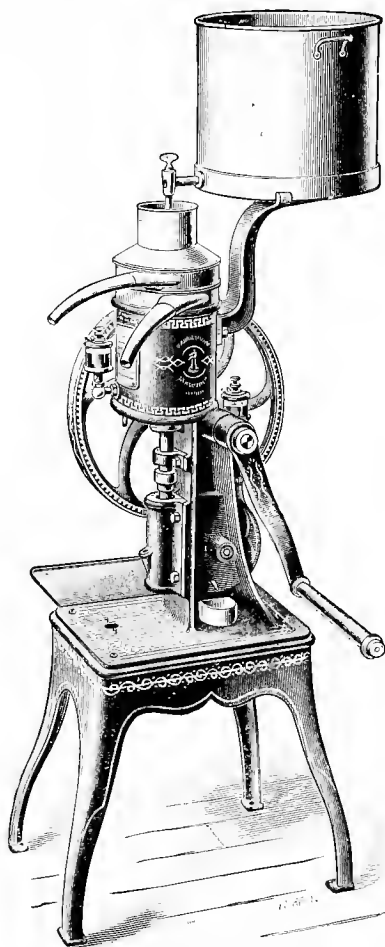
PRICE, \$100.00

The Improved or New Style "Baby" No. 1 is a new "Alpha" disc bowl type of machine, designed especially to meet the needs of the user thinking himself unable to afford the cost of the larger capacity No. 2 machine, and preferring to give more time to the separation rather than to go beyond absolute necessity in first cost. It is simply a reduced size of the "Baby" No. 2 machine. It is intended for dairies of from five to ten or fifteen cows, though the use of the larger capacity No. 2 machine is recommended as more practicable and economical in dairies of eight or more cows. Its improved capacity is 325 lbs., and price, inclusive of handsome iron supporting stool, \$100.

HOLLOW BOWL BABY No. 1, \$50.00

IMPROVED "BABY" No. 2

INCREASED CAPACITY

DE LAVAL CREAM SEPARATOR

New improvements not fully shown in cut.

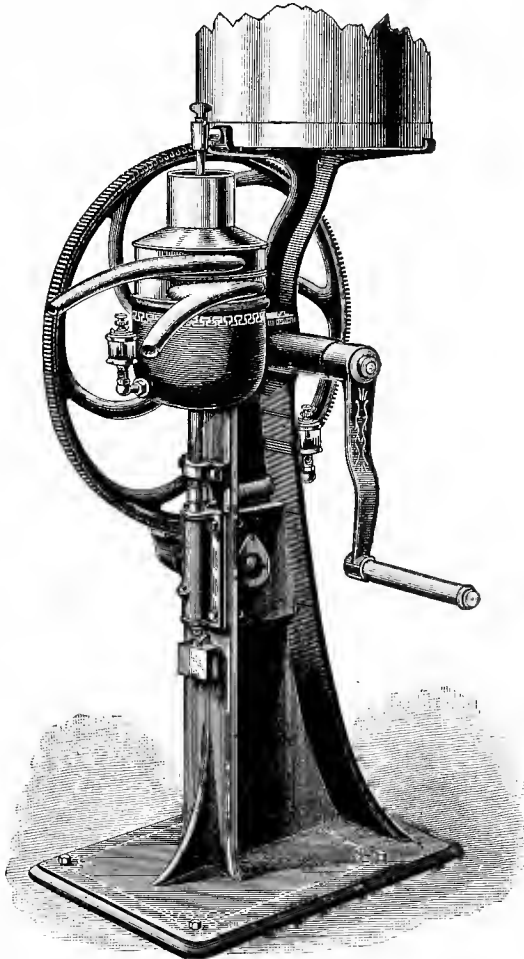
ACTUAL CAPACITY, 450 LBS. PER HOUR**"Alpha" or "Disc" bowl type****PRICE, \$125.00**

The "Baby" No. 2 is the best known and heretofore most widely used size of dairy separator, and is the machine which has been mainly instrumental in revolutionizing farm dairying. It is of the "Alpha" or disc bowl type, and as now made possesses many improvements over any previous form. It is intended for dairies of from 5 to 20 or 30 cows, and often used in even larger ones. In addition to the well-known low frame form shown in cut, it is now also made for use with a handsome iron stool, at small additional cost, and also in high or solid frame form like the "Baby" No. 3, at little greater charge, when such style of frame may be preferred. Its improved capacity is now 350 to 400 lbs., and price \$125.00.

HIGH FRAME, SAME PRICE

IMPROVED "BABY" No. 3

INCREASED CAPACITY

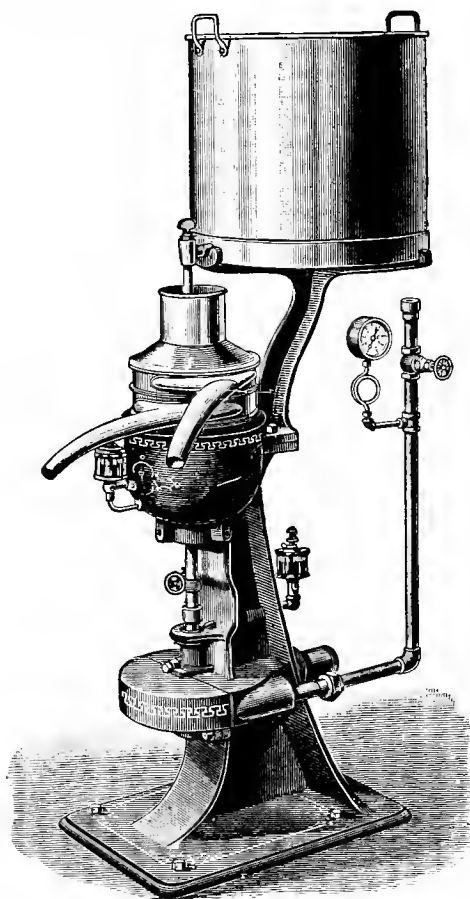
DELAVAL CREAM SEPARATOR**ACTUAL CAPACITY, 850 LBS. PER HOUR****"Alpha" or "Disc" bowl type****PRICE, \$200.00**

The "Baby" No. 3 is essentially the same as the "Baby" No. 2, other than that it is designed on a larger scale all through. It is looked upon as perhaps the most perfect of separators in symmetry of mechanical construction and general equipment. Users of separators are beginning to appreciate the many greater advantages of creaming their milk quickly, as well as the economy of saving time in separation as in everything else. The No. 3 is designed for dairies of from 20 to 75 or more cows, but is now being largely used in dairies of even 10 or 15 cows by reason of its doing the same work in half the time necessary with the No. 2. Its capacity is now 675 to 700 pounds per hour, and price \$200.

IMPROVED DAIRY TURBINE

STEAM MOTOR

DE LAVAL CREAM SEPARATOR



ACTUAL CAPACITY, 850 LBS. PER HOUR

"Alpha" or "Disc" Bowl Type

PRICE, \$225.00

The larger "Baby" or No. 3 machine is now also constructed in the form of a Dairy Turbine, for direct steam or boiler connection. It is of exceptional excellence in its mechanical construction and utilizes the latest improved principles of the DeLaval Steam Turbine "Creamery" machines. The Turbine power, however, is simply applicable to the separator, and this means of operation is only advisable for farm and dairy requirements where power is desired to be used with the separator but not for churning and other kindred work, in which, unless otherwise provided for, it is more necessary than in separating with the De Laval machines. Such form of power is never economical or practicable in a smaller machine, and only under these exceptional conditions with one of this size. Its capacity is 700 lbs., and price \$225.

EXTRAS AND SUPPLIES FOR

DE LAVAL ALPHA STRAP

"Humming-Bird" Separator

Name.	Plate. In Manual.	No.	Price.
Bowl Discs, except top one (each).....	I	706	\$0.15
Top Bowl Disc.....	I	707	.50
Disc Wing, and Rivets.....	II	708	.25
Bowl Nut.....	II	710	.75
Bowl Ring (rubber).....	II	711	.10
Bowl Wrench (also for top-bearing).....	II	743	.50
Milk Screw.....	III	713	.10
Covers, Regulating Cup.....	I	719	1.00
Cream Cover.....	I	720	1.00
Skimmed Milk Cover.....	I	721	.75
Regulating Float.....	I	723	.75
Felts, per set.....	III	—	.05
Lower Spindle.....	III	730	1.25
Lower Spindle Bushing.....	II	732	.35
Lower Spindle Step.....	III	731	.05
Oiler (can).....	I	759	.10
Plumb-Bob.....	III	735	.25
Plumb-Bob Point (in frame).....	—	736	.05
Ratchet Gear (or brass wheel).....	I	737	5.00
Ratchet Shaft.....	II	739	.50
Ratchet Shaft Pin.....	III	758	.05
Pawl Collar (on Strap Pulley).....	II	733	.75
Set Screw, for Pawl Collar.....	III	734	.05
Ratchet Pawls (each).....	III	741	.10
Felt in Pawl Collar.....	III	752	.02
Ratchet Guard.....	I	725	.75
Ratchet Guard Screw.....	III	726	.05
Ratchet Spring.....	II	745	.25
Ratchet Spring Case.....	I	748	2.50
Felt in Ratchet Spring Case.....	III	740	.01
Strap Pulley.....	I	750	1.50
Strap Pulley Screw.....	III	751	.15
Leather Strap.....	I	749	.20
Strap Handle.....	II	727	.05
Strap Handle Screw.....	III	728	.01
Screw Driver.....	III	742	.25
Screws, for holding frame (per set).....	III	729	.05
Supply Can.....	I	715	2.00
Supply Hook and Plug.....	II	716 & 718	.50
Top Bearing, steel spring bearing style.....	II	755	.50
Spring, for Top Bearing, as above.....	II	756	1.25
Screw, for Top Bearing, as above (each).....	III	757	.05
Top Bearing Felt.....	III	702	.01
Top Bearing, rubber ring style.....	II	700	.50
Bearing Ring, for above.....	II	701	.05

EXTRAS AND SUPPLIES FOR DE LAVAL ALPHA CRANK GEARED “Humming Bird” Separator.

NAME OF PART.	NO.	PRICE.
Short Screw for securing Guard.....	72	\$0.10
Taper Pin for Worm Wheel or Ratchet Collar.....	472	.10
Brush for Cover Spouts.....	489	.20
Top Bearing Felt.....	702	.01
Bowl Disc (Indented for Bowls up to No. 88,000).....	706	.15
Top Disc (for Bowls up to No. 88,000).....	707	.50
Disc Wing and Rivets (for Bowls above No. 116,100).....	708	.15
Bowl Nut (for Bowls above No. 116,100).....	710	.75
Bowl Ring (rubber) (for Bowls above No. 116,100).....	711	.10
Milk Screw (for Bowls above No. 116,100).....	713	.10
Supply Can with seat.....	715	2.00
Supply Plug and Hook.....	716 & 718	.50
Regulating Cup Covers.....	719	1.00
Cream Cover	720	1.00
Skim Milk Cover	721	.75
Regulating Float	723	.75
Screws for fastening down Machines (per set of 4).....	729	.05
Step for Worm Screw.....	731	.05
Screw-Driver for Milk Screw, etc.....	742	.25
Top Bearing Screw.....	757	.05
Small Steel Oiler.....	759	.10
Screws for plugging holes in Bowl Housing of Frame, each	761	.05
Bowl Wrench	763	.50
Crank, complete	769	1.25
Crank Arm (or Lever), (separately).....	771	.75
Crank Handle (complete except Arm).....	772	.50
Crank Wood Handle.....	773	.25
Crank Handle Spindle	774	.35
Crank Handle Nut (separately).....	775	.10
Sight Feed Lubricator.....	776	1.25
Ratchet Collar, with Taper Pin.....	777	.75
Ratchet Collar (separately).....	778	.65
Ratchet Pin	780	.05
Ratchet Spring	781	.05
Shaft for Gear Wheel and Crank.....	782	1.25
Gear or Driving Wheel and Pin.....	784	3.85
Taper Pin for Gear Wheel (separately).....	785	.10
Pinion for Gear Wheel.....	786	1.75
Guard for Gear Wheel.....	787	1.00
Long Screw for securing Guard.....	788	.15
Long Bushing for Pinion Shaft.....	789	.75
Short Bushing for Pinion Shaft.....	790	.50
Worm Wheel	792	3.75
Worm Screw	793	3.00
Lower Worm Screw Bushing.....	794	.75
Drip Pipe (from Worm Wheel Housing).....	796	.05
Oil Drip Cup.....	797	.10
Top Bearing	798	1.75
Upper Worm Screw Bushing.....	799	.75

NAME OF PART.	NO.	PRICE.
Disc, Caulked, for Bowls above No. 116,100.....	954	\$0.15
Disc, Plain, for Bowls above No. 116,100.....	955	.15
Disc, Top, for Bowls above No. 116,100.....	956	.50
Lubricator (cup only).....	957	1.00
Lubricator Cup Glass.....	958	.25
Sight Feed Piece (and Glass).....	959	.25
Wire Holder for Washing Discs.....	960	.15
Screw for plugging hole in base of Frame.....	980	.10
Disc, Top, for Bowls No. 7101A and up.....	992	.50
Disc, Plain, for Bowls No. 7101A and up.....	993	.15
Disc, Caulked, for Bowls No. 7101A and up.....	994	.20
Step Screw	1102	.25
Nut for same	1103	.05
Lower Worm Screw Bushing.....	1105	.50
Bowl Spindle and Screw.....	1106	2.00
Worm Screw	1107	3.00
Crosspin for Worm Screw.....	1108	.03
Washer for Top Bearing.....	1109	.75
Bowl Spindle Screws.....	1110	.25

EXTRAS AND SUPPLIES FOR

DE LAVAL ALPHA "BABY" No. 1 SEPARATOR

Bottom Screw (or Step), complete.....	500	\$0.50
Screw (separately)	449	.25
Lock Nut (separately).....	450	.15
Brush, for Cover Spouts.....	520	.15
Claw or "S" Wrench (for nuts).....	490	.50
Covers, complete set.....	683	4.50
Top or Regulating Cover (separately).....	679	1.75
Cream Cover (separately).....	524	1.50
Skim-milk Cover (separately).....	525	1.50
Crank, complete	620	3.00
Crank Arm or Lever (separately).....	454	1.50
Crank Handle (complete except Arm).....	624	1.50
Crank Handle (Wood), (separately).....	451	.40
Crank Handle Spindle (separately).....	452	1.00
Crank Handle Nut (separately).....	453	.10
Cream Screw for Bowls after and including No. 134,601.....	612	.10
Cream Screw Driver.....	515	.10
Drip Pipe, for frame discharge.....	428	.10
Drip Cup	635	.75
Faucet, complete	521	.75
Faucet Shank	615	.40
Faucet Plug	616	.35
Float, for Regulating Cover.....	522	.75
Gear or Driving Wheel (with pin).....	461	7.50
Shaft for Gear Wheel and Crank.....	460	1.50
Shaft for Gear Wheel, enlarged repair size.....	617	2.00
Taper Pin for Gear Wheel (separately).....	462	.10
Guard, for Bowl Spindle.....	420	.75
Guard for Gearing (with three screws).....	964	2.50
Screw for fastening Guard.....	72	.10
Set Screws for Guard (each).....	479	.10
Housing for Worm Screw, etc. (without parts).....	430	3.00
Housing Screws (each).....	431	.10
Milk Screw, for Bowls below No. 130,500.....	612	.10
Milk Screw Driver.....	515	.10

NAME OF PART.	NO.	PRICE.
Pinion for Gear or Driving Wheel (and Pin).....	463	\$1.75
Taper Pin for Pinion (separately).....	472	.10
Pinion on Worm Wheel Shaft.....	473	1.25
Long Bushing for Pinion Shaft.....	474	1.00
Short Bushing for Pinion Shaft.....	475	.50
Pinion Guard (with two screws).....	478	.50
Pinion Guard Screw.....	479	.10
Power Pulley, for Crank Shaft.....	455	2.50
Power Pulley, with small Hand Crank attached.....	626	3.50
Pulley Crank Piece (separately).....	491	1.00
Set-Screw for Crank Piece (491). (separated).....	123	.10
Pinion Shaft Tight and Loose Pulleys, with Ratchet, complete.....	693	7.50
Ratchet Pulley (separately).....	694	3.00
Loose Pulley (separately).....	695	2.00
Ratchet Hub (separately).....	696	2.00
Cap (separately).....	697	.50
Set-Screw (separately).....	284	.10
Ratchet Pin (separately).....	605	.15
Ratchet Spring (separately).....	52	.10
Taper Pin (separately).....	472	.10
Belt Shifter Bracket (separately).....	468	.50
Belt Shifter Bracket Set-Screw.....	123	.10
Belt Shifter (469 and 470), (separately).....	469	.75
Belt Shifter Thumb Screw (separately).....	288	.10
Pinion Shaft single Ratchet Pulley, complete.....	527	6.00
Ratchet Pulley (separately).....	528	3.00
Ratchet Pulley Bush (separately).....	539	2.50
Ratchet Pulley Pin (separately).....	605	.15
Ratchet Pulley Spring (separately).....	52	.10
Ratchet Pulley Collar (separately).....	531	.50
Ratchet Pulley Set-Screw (separately).....	321	.05
Ratchet Flange (or Collar) with Pin.....	623	.75
Collar (separately).....	458	.65
Taper Pin for Ratchet Flange (separately).....	459	.10
Ratchet Pin (separately).....	456	.10
Ratchet Spring (separately).....	457	.05
Rubber Ring, for Bowl Top.....	514	.15
Rubber Ring for Top Bearing (per half doz.).....	443	.65
Screws for fastening machine to wooden table (each).....	434	.05
Lag Screws for Stool.....	976	.05
Separating Plates (or Discs) for machines 1351A and up:		
Plain Disc.....	983	.20
Caulked Disc.....	984	.25
Bottom Disc.....	985	.25
Separating Plates or Discs, except top one as noted below..	654	.20
Top Disc for bowls up to and including No. 130,500.....	668	.50
Tubular Shaft, complete for bowls up to No. 99,200.....	678	2.50
Disc Wing and Rivets.....	903	.50
Pin at bottom of (678) Tubular Shaft.....	904	.10
Tubular Shaft for machines 1351A and up.....	987	3.00
Tubular Shaft, with cast lug in bottom for bowls between Nos. 99,201 and 130,500 inclusive.....	940	2.50
Tubular Shaft, with cast lug for bowls above and including No. 134,601.....	975	2.50
Disc Wing and Rivets for (975) Tubular Shaft.....	978	.50
Disc Holder.....	939	.25
Sight Feed Lubricators, complete (495 and 675), (each)....	686	1.50
Lubricator (cup only), (separately).....	495	1.35
Lubricator-Cup Glass (separately).....	972	.35
Sight Feed Piece (and Glass) (separately).....	975	.25
Lubricator Arm and Tube.....	676	.60
Nut for Arm.....	345	.10

NAME OF PART.	NO.	PRICE.
Wrench for Lubricator Arm Nut.....	918	\$0.35
Small Steel Oil Feeder.....	618	.15
Spindle Shield	971	.50
Spanner Wrench, for Bowl Top.....	516	.75
Bowl-holding Plate and Pins.....	551	.25
Screws for Bowl-holding Plate (each).....	552	.03
Steel Points (each).....	448	.10
Stool (Iron) to set machine on, complete with shelf and bolts	965	7.50
Screws for fastening two legs of stool together (each)....	433	.10
Shelf for holding Cream Receptacle.....	960	1.50
Nuts for fastening shelf to stool (each).....	973	.10
Bolt for fastening machine to stool (each).....	943	.15
Supply Can	681	2.75
Supply Can Bracket	533	2.50
Supply Can Bracket Screw (each).....	433	.10
Top Bearing (Radial Spring Style), complete with plate...	948	5.00
Repair Size, No. 2 Top Bearing (Radial Spring), complete	948 ²	5.00
Repair Size, No. 3 Top Bearing (Radial Spring), complete	948 ³	5.00
Exchange of new bearing (948), complete, for worn bearing complete, postage or expressage to be prepaid on return of old bearing.....	—	2.50
Bearing Disc for (948) Bearing and Plate.....	963	.85
Screw for fastening (948) Plate to (963) Disc.....	661	.15
Screw for fastening (963) Disc to Frame.....	433	.10
Top Bearing (Rubber Ring style), for Bowl Spindle.....	442	1.00
Repair size, No. 2 Top Bearing.....	493	1.00
Repair size, No. 3 Top Bearing.....	494	1.00
Wooden Pin, for adjusting top bearing.....	499	.25
Brass Pin, for Wooden Pin (499), (separately).....	631	.05
Worm Screw (or Spindle).....	519	3.00
Spindle Head, for Worm Screw.....	518	.75
Bushing for Worm Screw (bronze).....	446	.75
Bushing for base of Worm Screw (bronze).....	492	.50
Worm Wheel (brass), (and Taper Pin).....	476	5.00
Taper Pin for Worm Wheel (separately).....	477	.10

EXTRAS AND SUPPLIES FOR

DE LAVAL ALPHA No. 2 "BABY" SEPARATOR

Bottom Screw (or Step), complete.....	500	\$0.50
Screw (separately)	449	.25
Lock Nut (separately).....	450	.15
Brush, for Cover Spouts.....	526	.15
Tube Cleaner, for Bowl Tubes.....	517	.15
Claw or "S" Wrench (for nuts).....	490	.50
Covers, complete set, new style.....	656	5.00
Top (or Regulating) Cover, new style.....	657	2.00
Cream Cover, new style.....	658	1.75
Skim-milk Cover, new style.....	659	1.75
Covers, complete set, old style.....	619	4.50
Top (or Regulating) Cover, old style.....	523	1.75
Cream Cover, old style.....	524	1.50
Skim-milk Cover, old style.....	525	1.50
Crank, complete	620	3.00
Crank Arm (or Lever), (separately).....	454	1.50
Crank Handle (complete except Arm).....	624	1.50
Crank Handle (Wood), (separately).....	451	.40
Crank Handle Spindle (separately).....	452	1.00
Crank Handle Nut (separately).....	453	.10

NAME OF PART.	NO.	PRICE.
Cream Screw for Bowl (after No. 44,600).....	612	\$0.10
Cream Screw, old style (before No. 44,600).....	506	.10
Cream Screw Driver or Wrench, new style.....	515	.10
Cream Screw Driver or Wrench, old style.....	638	.25
Drip-pipe, for frame discharge.....	428	.10
Faucet, complete.....	521	.75
Faucet Shank.....	615	.40
Faucet Plug.....	616	.35
Float, for Regulating Cover.....	522	.75
Gear or Driving (large cog) Wheel.....	461	7.50
Shaft for Gear Wheel (and Crank).....	460	1.50
Shaft for Gear Wheel, enlarged repair size.....	617	2.00
Taper Pin for Gear Wheel.....	462	.10
Guard, for Bowl Spindle.....	429	.75
Guard for Gearing.....	962	2.50
Top Screw for Guard.....	72	.10
Set Screw for Guard.....	479	.10
Housing for Worm Screw, etc. (without parts).....	430	3.00
Housing Screws (each).....	431	.10
Iron Stool for setting Separator on (complete).....	965	7.50
Shelf for same (separately).....	960	1.50
Pinion for Gear or Driving Wheel.....	463	1.75
Taper Pin for Pinion.....	472	.10
Pinion or Worm Wheel Shaft.....	473	1.25
Long Bushing for Pinion Shaft.....	474	1.00
Short Bushing for Pinion Shaft.....	475	.50
Pinion Guard.....	478	.50
Pinion Guard Screw.....	497	.10
Power Pulley, for Crank Shaft.....	455	2.50
Power Pulley, with small Hand Crank attached.....	626	3.50
Pulley Crank Piece (separately).....	491	1.00
Set-Screw for Crank Piece (491), (separately).....	123	.10
Pinion Shaft Tight and Loose Pulleys, with Ratchet, complete set, new style.....	693	7.50
Ratchet Pulley.....	694	3.00
Loose Pulley.....	695	2.00
Ratchet Hub.....	696	2.00
Cap.....	697	.50
Set Screw.....	284	.10
Ratchet Pin.....	605	.15
Ratchet Spring.....	52	.10
Taper Pin.....	472	.10
Belt Shifter Bracket.....	468	.50
Belt Shifter Bracket Set-Screw.....	123	.10
Belt Shifter (469 and 470).....	460	.75
Belt Shifter Thumb Screw.....	288	.10
Pinion Shaft Tight and Loose Pulleys, without Ratchet, complete set, old style.....	622	6.00
Belt Pulley, Tight.....	464	2.50
Belt Pulley, Loose.....	465	2.00
Belt Pulley Collar.....	466	.50
Belt Pulley Collar Set-Screw.....	467	.10
Belt Shifter Parts (same as above).....	—	—
Pinion Shaft Flat Belt Ratchet Pulley, complete.....	527	6.00
Ratchet Pulley (separately).....	528	3.00
Ratchet Pulley Bush (separately).....	529	2.50
Belt Pulley Pin (separately).....	605	.15
Ratchet Pulley Spring (separately).....	52	.10
Ratchet Pulley Collar (separately).....	531	.50
Ratchet Pulley Set-Screw (separately).....	321	.05
Ratchet Flange (or Collar) with Pin.....	623	.75
Taper Pin for Ratchet Flange (separately).....	450	.10
Ratchet Pin.....	456	.10

NAME OF PART.	NO.	PRICE.
Ratchet Spring	457	\$0.05
Rubber Ring, for Bowl Top.....	514	.15
Rubber Ring for Top Bearing (per half doz.).....	443	.65
Screws for fastening iron stool to floor or machine to wood- en stand, each.....	434	.10
Screw and Nut for fastening machine to stool.....	943	.15
Separating Plates (or Discs) for machines 1351A and up:		
Plain Disc	983	.20
Caulked Disc	984	.25
Bottom Disc	985	.25
Separating Plates (or Discs) for 350 lbs. capacity bowl and notched for tubular shaft, each.....	654	.20
Tubular Shaft for machines 1351A and up.....	986	3.50
Tubular Shaft (with cast cup) for notched discs, as above..	917	3.00
Tubular Shaft, Base Screw.....	904	.10
Tubular Shaft (with cast cup and lug instead of pin), as above	942	3.00
Tubular Shaft, plain, for notched discs, as above.....	651	2.25
Disc Wing (and rivets), (separately).....	653	.50
Supporting Wing (and rivets), (separately).....	652	.25
Separating Plates (or Discs) for 350 lbs. capacity bowl, but without notches:		
All Discs, except bottom one, as above.....	610	.20
Bottom Disc, as above.....	611	.25
Tubular Shaft, as above.....	609	2.00
Separating Plates (or Discs), 300 lbs. capacity bowl, prior to No. 49,600:		
All Discs, except top and bottom ones, each.....	512	.15
Top Discs, old style, as above.....	511	.20
Bottom Discs, old style, as above.....	513	.20
Tubular Shaft, old style, as above.....	510	1.50
Disc Holder	939	.25
Separate Sight Feed Lubricators, complete (495 and 675), each	686	1.50
Lubricator (cup only).....	495	1.35
Lubricator Cup Glass.....	—	.35
Sight Feed Piece (and Glass).....	675	.25
Lubricator Arm and Tube.....	676	.60
Nut for Arm.....	345	.10
Wrench for Lubricator Arm Nut.....	918	.35
Small Steel Oil Feeder.....	618	.15
Oil Drip Cup.....	635	.75
Twin Sight Feed Lubricators, complete set.....	621	4.00
Sight Feed Cups (each).....	495	1.35
Sight Feed Bracket and Tubes.....	496	1.35
Brass double-tube Oil Cup.....	480	1.50
Old Style single-tube Top Bearing Oil Cup.....	627	1.25
Old Style single-tube Worm Wheel Oil Cup.....	481	1.00
Wick-wires (and Wicks), old style, per doz.....	482	.25
Screws for fastening all Oil Cups, each.....	72	.10
Shield for Bowl Spindle.....	971	.50
Spanner Wrench for Bowl Top.....	516	.75
Bowl-holding Plate and Pins.....	551	.23
Screws for Bowl-holding Plate (each).....	552	.03
Steel Point (per half doz.).....	448	.50
Supply Can, large size (after machine No. 44,400).....	534	3.00
Supply Can (size prior to machine No. 44,400).....	520	2.00
Supply Can Bracket (after machine No. 44,400).....	533	2.50
Supply Can Bracket (prior to machine No. 44,400).....	502	2.00
Supply Can Bracket Screw (each).....	433	.10
Top Bearing (Radial Spring Style), complete, with plate (after machine No. 121,501).....	948	5.00

NAME OF PART.	NO.	PRICE.
Repair Size, No. 2 Top Bearing (Radial Spring), complete	948 ²	\$5.00
Repair Size, No. 3 Top Bearing (Radial Spring), complete	948 ³	5.00
Exchange of new Bearing (948), complete, for worn Bearings complete, postage or expressage to be prepaid on return of old bearing.....	—	2.50
Bearing Disc, for (948) Bearing and Plate.....	963	.85
Screw for fastening (948) Plate to (963) Disc.....	691	.15
Screw for fastening (963) Disc to Frame.....	433	.10
Top Bearing (Vertical Spring Style), complete.....	687	2.00
Repair Size, No. 2 Top Bearing, complete.....	908	2.00
Repair Size, No. 3 Top Bearing, complete.....	909	2.00
Top Bearing Disc.....	663	.85
Top Bearing Plate.....	920	2.00
Cap Screws for Plate (each).....	433	.10
Screws for Top Bearing Disc (each).....	691	.15
Bearing Set-Screw (each).....	906	.15
Top Bearing (Rubber Ring Style) (iron).....	442	.75
Top Bearing (Rubber Ring Style), (bronze).....	442	1.00
Repair Size, No. 2 Top Bearing.....	493	1.00
Repair Size, No. 3 Top Bearing.....	494	1.00
Wooden Pin, for adjusting top bearing.....	499	.25
Brass Pin, for Wooden Pin (499), (separately).....	631	.05
Worm Screw (or Spindle), N. S. with loose head.....	519	3.00
Worm Screw (or Spindle), O. S. with cross pin.....	445	3.00
Spindle Head, for N. S. Worm Screw.....	518	.75
Bushing for Worm Screw (bronze).....	446	.75
Bushing for base of Worm Screw (bronze).....	492	.50
Set Screw for Worm Screw Bushing.....	447	.10
Worm Wheel (brass).....	476	5.00
Taper Pin for Worm Wheel.....	477	.10

EXTRAS AND SUPPLIES FOR DE LAVAL ALPHA "BABY" No. 2

High Frame—Differing from Low Frame

Gear or Driving (large cog) Wheel.....	961	\$7.50
Taper Pin for Gear Wheel, old style, for machines below 92,700	462	.10
Large Shaft Bushing.....	673	.75
Small Shaft Bushing.....	674	.60
Power Pulley, for Crank Shaft for machines above 109,095...	558	3.00
Screws for fastening down machine (each).....	539	.10
Separating Plates (or Discs), (each).....	654	.20
Disc Wing for 917 Tubular Shaft.....	927	.40
Bearing Set Screw Shoe for machines below 92,700.....	916	.10

EXTRAS AND SUPPLIES FOR DE LAVAL ALPHA No. 3 "BABY" SEPARATOR

Bottom Screw (or Step) complete.....	500	\$0.50
Screw (separately)	449	.25
Lock Nut (separately).....	450	.15
Brush, for Cover Spouts	526	.15
Tube Cleaner, for Bowl Tubes.....	169	.15
Claw or "S" Wrench (for nuts).....	490	.50

NAME OF PART.	NO.	PRICE.
Covers, complete set.....	594	\$7.00
Top (or Regulating) Cover (separately).....	589	2.25
Cream Cover (separately).....	590	2.25
Skim-milk Cover (separately).....	591	2.50
Crank, complete	641	3.00
Crank Arm (or Lever) (separately).....	557	1.50
Crank Handle (complete except Arm).....	624	1.50
Crank Handle Nut (separately).....	453	.10
Cream Screw, for Bowl.....	158	.15
Cream Screw Wrench	168	.15
Drip Pipe, for frame discharge.....	593	.10
Driving (or large Gear) Wheel	563	12.50
Shaft for Driving Wheel and Crank.....	562	1.75
Bushing for Driving Wheel Shaft (each).....	565	.75
Taper Pin for Driving Wheel	564	.15
Faucet, complete	587	1.00
Faucet Shank	595	.60
Faucet Plug	596	.40
Feeding Can, large size (after machine No. 44,190).....	599	4.00
Feeding Can (size prior to machine No. 44,191).....	586	3.00
Feeding Can Bracket (after machine No. 44,190).....	598	3.00
Feeding Can Bracket (prior to machine No. 44,191).....	538	2.50
Feeding Can Bracket Screw (each).....	431	.10
Float, for Regulating Cover	522	.75
Guard, for Bowl Spindle.....	429	.75
Housing (without parts), for Worm Screw, etc.....	537	3.00
Housing Screws, each.....	431	.10
Lag Screws, for base of machine, each.....	539	.10
Pinion for Driving or Gear Wheel.....	566	2.50
Pinion or Worm Wheel Shaft.....	574	1.25
Bushing for Pinion Shaft	576	1.50
Screw for Pinion Shaft Bushing, each.....	577	.10
Nut for Pinion Shaft	575	.10
Pinion Guard	579	.50
Pinion Guard Screw	577	.10
Power Pulley, for Crank Shaft.....	558	3.00
Power Pulley, with small Hand Crank attached.....	644	4.50
Pulley Crank Piece (only).....	491	1.00
Set Screw for Crank Piece (491).....	123	.10
Pinion Shaft, Tight and Loose Pulleys, complete.....	572	6.00
Belt Pulley, Tight	567	2.00
Belt Pulley, Loose	568	2.00
Belt Pulley Shifter, complete.....	569	2.00
Belt Shifter Bracket	570	.75
Belt Shifter Bracket Set Screw.....	123	.10
Belt Shifter (470 and 571).....	—	1.25
Belt Shifter Thumb Screw.....	288	.10
Pinion Shaft flat belt Ratchet Pulley, complete.....	601	6.00
Ratchet Pulley	602	3.00
Ratchet Pulley Bush	603	2.50
Ratchet Pulley Washer	604	.20
Ratchet Pulley Pin	605	.20
Ratchet Pulley Spring	52	.10
Ratchet Flange (561), with Taper Pin	642	1.00
Taper Pin for Ratchet Flange (separately).....	459	.15
Ratchet Pin (separately).....	559	.15
Ratchet Spring (separately).....	560	.10
Rubber Ring, for Bowl Top.....	550	.20
Rubber Ring, for Top Bearing (per half doz.).....	443	.65
Separating Plates or Discs for all bowls after 116,000:		
Discs with strips caulked on.....	946	.50
Plain Disc (except top and bottom discs).....	945	.35
Heavy Plain Disc for top and bottom.....	947	.50

NAME OF PART.	NO.	PRICE.
Separating Plates (or Discs) for Machine 4201A and up:		
Plain Disc	988	\$0.35
Caulked Disc	989	.50
Bottom Disc	990	.50
Separating Plates (or Discs) for all bowls after No. 51,900		
up to 99,300.....	633	.25
Tubular Shaft for Machines 4201A and up.....	991	5.00
Tubular Shaft, attached bottom cup.....	921	4.00
Disc Wing, with Rivets, for Tubular Shaft, No. 921, sep- arately	922	.75
Tubular Shaft, without attached cup.....	632	2.00
Disc Wing, with Rivets, for Tubular Shaft, No. 632, sep- arately	634	.75
Disc Holder (for cleaning).....	966	.30
Separating Plates (or Discs), all Bowls prior to machine No. 51,900:		
All Discs, old style, except top one, each.....	549	.25
Top Discs, old style, as above.....	548	.35
Tubular Shaft, old style as above	546	3.50
Disc Wing, with Rivets, for tubular shaft (separately....	547	.75
Sight Feed Lubricators, after machine No. 95,982:		
Cup, complete, each	686	1.50
Lubricator (cup only)	495	1.35
Lubricator-Cup Glass	972	.35
Sight-Feed Piece (and Glass).....	675	.25
Upper Lubricator Arm	676	.75
Back Lubricator Arm	685	.60
Nut for Arm	345	.10
Wrench for Lubricator Arm Nut	918	.35
Sight Feed Lubricators, prior to machine No. 95,982:		
Sight Feed Lubricators, Upper one, complete.....	645	2.35
Sight Feed Lubricator, Lower one, complete.....	646	2.50
Upper Sight Lubricator, cup only.....	495	1.35
Lower Sight Lubricator, cup only.....	639	1.35
Upper Lubricator Bracket, separately	666	1.00
Lower Lubricator Bracket, separately.....	607	1.15
Spindle Shield	970	.60
Brass Top Oil-Cup, old style	582	1.25
Brass Lower Oil-Cup, old style.....	583	1.50
Wick-wires (and Wicks), old style, per doz.....	482	.25
Screws for fastening all Oil Cups, each.....	72	.10
Oil Catcher, under housing	585	1.00
Drip Pipe, for oil, under housing	584	.10
Small Steel Oil Feeder	618	.15
Spanner Wrench, for Bowl Top.....	553	1.00
Bowl holding Plate and Pins.....	551	.25
Screws for Bowl holding Plate, each.....	552	.03
Steel Points (per half doz.).....	448	.50
Top Bearing (Radial Spring style), complete with plate....	967	5.00
Repair Size, No. 2 Top Bearing (Radial Spring).....	967 ²	5.00
Repair Size, No. 3 Top Bearing (Radial Spring).....	967 ³	5.00
Exchange of new bearing (967), complete, for worn bear- ing, complete, postage or expressage to be prepaid on return of old bearing	—	2.50
Bearing disc for (967) Bearing.....	963	.85
Screw for fastening Bearing (967) to Disc (963).....	691	.15
Screw for fastening Disc (963) to Frame.....	433	.10
Top Bearing (Vertical Spring Style), complete.....	687	2.00
Top Bearing Set-Screw	906	.15
Top Bearing Plate	920	2.00
Top Bearing Plate Disc	663	.85
Top Bearing Disc Screw	691	.15
Top Bearing Plate Screw	433	.10

NAME OF PART.	NO.	PRICE.
Repair size, No. 2, Spring Bearing, complete.....	908	\$2.00
Repair size, No. 3, Spring Bearing, complete.....	909	2.00
Top Bearing, plain style, iron.....	442	.75
Top Bearing, plain style, bronze.....	442	1.00
Repair size, No. 2 Top Bearing, plain style.....	493	1.00
Repair size, No. 3 Top Bearing, plain style.....	494	1.00
Wooden Pin, for adjusting bearing.....	499	.25
Brass Pin, for Wooden Pin (499).....	631	.05
Worm Screw (or Spindle).....	555	3.00
Spindle Head, for Worm Screw.....	554	.75
Bushing for Worm Screw (bronze).....	556	1.00
Bushing for base of Worm Screw (bronze).....	492	.50
Worm Wheel (brass).....	578	5.00
Shield for Worm-Wheel Opening.....	581	.25
Screw for Shield.....	72	.10

EXTRAS AND SUPPLIES FOR DE LAVAL ALPHA DAIRY TURBINE

Indicator Clamp.....	20	\$0.25
Indicator Wheel and Post.....	30	1.65
Screws for fastening Oil Cups.....	72	.05
Brass Oil Cup for lower mechanism.....	124	1.25
Steam Connections, outside piping, complete set.....	130	4.00
Steam Gauge Siphon.....	131	1.35
Steam Gauge.....	132	5.00
Pressure Regulator, governing steam pressure.....	133	12.50
Cream Screw for Bowl.....	158	.15
Cream Screw Wrench.....	168	.15
Tube Cleaner, for Bowl Tubes.....	169	.15
Pet Cock, for lower oil discharge.....	228	.25
Indicator Clamp Screw.....	288	.10
Nut for Lubricator Arms.....	345	.10
Set Screw for Steam Nozzle.....	346	.15
Guard for Bowl Spindle.....	429	.75
Screw for Spindle Guard or Supply Can Bracket.....	431	.10
Screw for Steam Wheel Cap.....	433	.10
Steel Point (separately).....	448	.10
Bottom Screw (separately).....	449	.25
Bottom Screw Lock Nut (separately).....	450	.15
Lower Spindle Taper Pin.....	477	.15
Wick-wire and Wicks (for Cup 124), per doz.....	482	.25
Claw or "S" Wrench (for screws).....	490	.50
Bottom Screw or Step, complete.....	500	.50
Float, for regulating cover.....	522	.75
Brush for Cover Spouts.....	526	.15
Screw, holding down.....	539	.10
Rubber Ring, for Bowl Top.....	550	.20
Bowl-holding Plate and Pins.....	551	.25
Screw for Bowl-holding Plate.....	552	.03
Spanner Wrench for Bowl Top.....	553	1.00
Faucet, complete.....	587	1.00
Top or Regulating Cover (separately).....	589	2.25
Cream Cover (separately).....	590	2.25
Skim-milk Cover (separately).....	591	2.50
Drip Pipe, for frame discharge.....	593	.10
Covers, complete set.....	594	7.00
Faucet Shank (separately).....	595	.60
Faucet Plug (separately).....	596	.40
Supply Can Bracket.....	598	3.00

NAME OF PART.	NO.	PRICE.
Supply Can	599	\$4.00
Front Lubricator Bracket and Tube, for machines below No. 63,994	606	1.00
Small Steel Oil Feeder	618	.15
Tubular Shaft, for use with Indented Discs (633)	632	2.00
Indented Discs for all machines up to No. 99,232	633	.25
Disc Wing with Rivets for Tubular Shaft No. 632 (separately)	634	.75
Top Bearing Disc	603	.85
Steam Wheel (and Spindle)	664	17.50
Lower Spindle (and Point)	665	1.25
Upper Bushing (for Lower Spindle)	666	1.50
Lower Bushing (for Lower Spindle)	667	1.50
Steam Nozzle	669	1.35
Sight Feed Piece and Glass	675	.25
Front Lubricator Arm and Tube, for machines below No. 95,982	676	.75
Lower Spindle Head	684	1.25
Back Lubricator Arm, for all machines	685	.60
Separate Sight Feed Lubricators (complete, 495 and 675 each)	686	1.50
Top Bearing (Vertical Spring Style), complete	687	2.00
Top Bearing Set Screw	690	.20
Screws for 967 and 663	691	.15
Steam Exhaust Connection	692	.50
Repair Size, No. 2, Vertical Spring Top Bearing, complete..	908	2.00
Repair Size, No. 3, Vertical Spring Top Bearing, complete..	909	2.00
Bushing Extractor (complete)	911	.75
Wrench for Lubricator Arm Nuts	918	.35
Tubular Shaft, attached bottom cup style	921	4.00
Disc Wing and Rivets for Tubular Shaft No. 921, separately.	922	.75
Disc, Plain Intermediate, for machines above No. 118,501....	945	.50
Disc, Caulked Intermediate, for machines above 118,501....	946	.35
Disc, Plain Top or Bottom, for machines above 118,501....	947	.50
Top Bearing Disc for Top Bearing No. 967	963	.85
Wire-holder for Washing Discs	966	.15
Top Bearing, Radial Spring Style, complete with plate.....	967 ¹	5.00
Top Bearing, Radial Spring Style, Repair Size No. 2, complete	967 ²	5.00
Top Bearing, Radial Spring Style, Repair Size No. 3, complete	967 ³	5.00
Exchange of New Bearing complete, for Worn Bearing complete (expressage to be prepaid on return of old bearing)	—	2.50
Lubricator Cup Glass (separately)	972	.35
Disc, Plain, for all machines above No. 7558A	988	.35
Disc, Caulked, for all machines above No. 7558A	989	.50
Disc, Bottom, for all machines above No. 7558A	990	.50
Tubular Shaft, for all machines above No. 7558A	991	5.00
Spindle Shield	999	.60
Faucet	1157	1.25

PRICE LIST OF EXTRAS

FOR

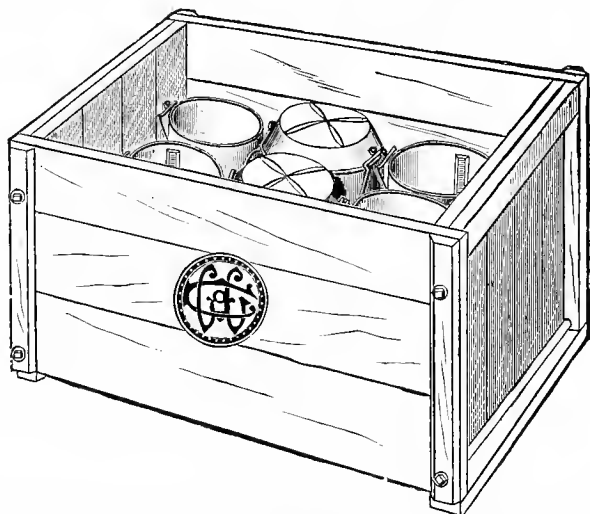
"MIKADO" EMPIRE CREAM SEPARATOR

No.		Price.	No.		Price.
1	Cream Pan (Covers).....	\$3.50	16	Cream Screw for Bowl.....	\$0.10
1a	Top Cover, alone.....	1.25	17	Neck Bearing, complete.....	1.25
1b	Cream Cover, alone.....	1.00	18	Brass Ring for above.....	.13
1c	Skimmed Milk Cover, alone.....	1.00	19	Rubber Ring for above...	.10
2	Milk Can.....	2.00	20	Steel Ball	.05
3	Faucet.....	.75	21	Nut Wrenches, each.....	.25
4	Float.....	.50	22	Worm Wheel, with Shaft, com- plete.....	7.80
5	Bracket for Milk Can.....	1.00	23	Worm Wheel, alone.....	3.25
6			24	Shaft, for above.....	3.75
7	Crank, with Handle, complete.	1.50	25	Clutch, for above.....	.75
7a	Handle, with Shaft.....	.75	26	Clutch Pin.....	.05
8	Driving Wheel, large.....	3.25	27	Side Plugs, per pair.....	1.40
9	Shaft for above.....	1.00	28	Nuts, per pair.....	.25
10	Steel Point or Step for Spindle.	.10	29	Power Pulley, large	3.75
11	Bowl Rubber Ring.....	.12	30	Bottom Plug, complete	1.50
12	Spanner Wrench for Bowl.....	.75	31	Bronze Bushing, for above	.67
13	Large Brush for Cleaning.....	.20	32	Step, for above.....	.10
14	Tube Cleaners, each.....	.15	33	Wick Wires, per dozen	.20
15	Interior Skimming Device for Bowl.....	4.50	34	Bowl Vise.....	.65

"No. 5" EMPIRE CREAM SEPARATOR

No.		Price.	No.		Price.
1	Cream Pan (Covers).....	\$5.00	16a	Wrench for Cream Screw.....	\$0.20
1a	Top Cover, alone.....	2.00	17	Neck Bearing, complete.....	2.75
1b	Cream Cover, alone.....	1.50	17a	Check Nuts, each.....	.30
1c	Skimmed Milk Cover, alone.....	1.50	18	Brass Ring for above.....	.17
2	Milk Can.....	2.75	19	Rubber Ring for above...	.20
3	Faucet.....	.96	20	Steel Ball.....	.06
4	Float.....	.50	21	Nut Wrenches, each.....	.25
5	Bracket for Milk Can.....	1.00	21a	Nut Wrench, special for Empire No. 5.....	.25
6	Sight Feed Oil Cup.....	1.50	22	Worm Wheel with Shaft, com- plete.....	8.25
6a	Bracket Oil Tube.....	.35	23	Worm Wheel, alone.....	3.80
6b	Glass for Oil Cup.....	.20	24	Shaft, for above.....	4.00
7	Crank, with Handle, complete..	1.50	25	Clutch, for above.....	.82
7a	Handle, with Shaft.....	.75	26	Clutch Pin.....	.05
8	Driving Wheel, large.....	4.00	27	Side Plugs, per pair.....	1.40
9	Shaft for above.....	1.00	28	Nuts, per pair.....	.25
10	Steel Point or Step for Spindle.	.15	29	Power Pulley, large.....	4.00
11	Bowl Rubber Ring.....	.15	30	Bottom Bearing, complete.....	3.50
12	Spanner Wrench for Bowl.....	1.00	31	Bronze Bushing, for above	.75
13	Large Brush for Cleaning.....	.50	32	Bottom Plug.....	.50
14	Tube Cleaners, each.....	.15	32a	Check Nuts, each.....	.30
15	Interior Skimming Device for Bowl.....	8.50	33	Wick Wires, per dozen.....	.20
16	Cream Screw for Bowl.....	.20	34	Bowl Vise.....	.85

TANK FOR DEEP SETTING CANS.



These tanks are made from two-inch lumber and the ends securely clamped and fastened with rods. We ship them in the "knock down" or set up. They are all provided with covers. They are sufficiently deep for the Cooley or Submerged can. They are intended for any deep setting can.

SIZES AND PRICES.

No. 1, 4 cans.....	\$6 50	No. 3, 8 cans.....	\$10 00
No. 2, 6 "	7 50	No. 4, 10 "	12 00

COMMON-SENSE SETTERS.

Without glass gauge or cover.....	\$0 60
Gauge and no cover	70
With cover and no gauge.....	70
With glass gauge and cover.....	80
In 100 lots a liberal discount allowed from above prices.	

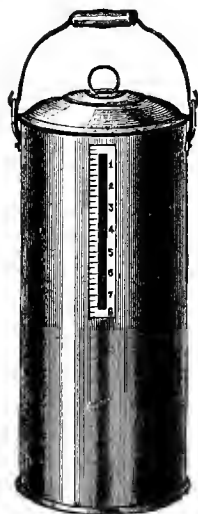
CREAM CAN GAUGES.

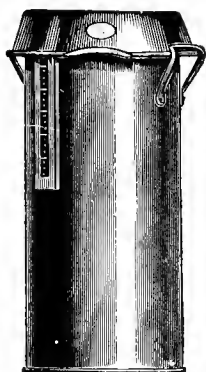


Per dozen	\$1 10
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CONICAL SKIMMERS.

Each.....	\$0 20	Per dozen.....	\$1 75
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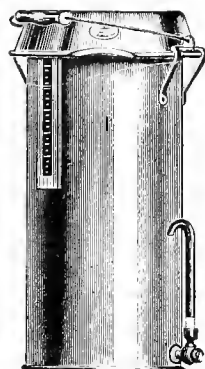
Plain Cooley Can, for gathered cream.

COOLEY CANS.

PRICES.

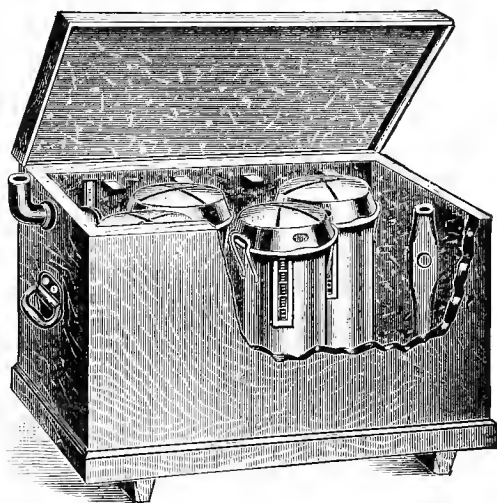
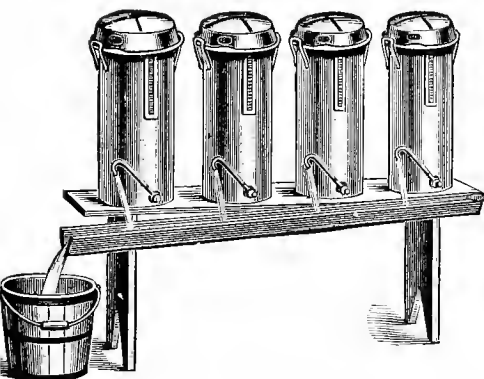
18 quart with skimmer..each,	\$2 00
In 100 lots.....	“ 1 75
18 quart, plain	“ 1 50
In 100 lots.....	“ 1 25
Skimmers.....	“ 70
12 quart cans furnished at above	

prices.



Spout Can.

COOLEY CREAMER.



SIZE, CAPACITY AND PRICES.

No. 0, for 1 can, milk of 1 cow, 18 quarts.....	\$18 00
“ 00, “ 2 cans, milk of 2 to 4 cows, 36 quarts.....	25 00
“ 1, “ 3 “ size 25 x 32 in., milk of 6 to 9 cows, 51 qts.....	28 00
“ 2, “ 4 “ “ 28 x 38 “ “ 9 to 12 “ 68 “.....	30 00
“ 3, “ 6 “ “ 28 x 49 “ “ 12 to 18 “ 102 “.....	40 00
“ 4, “ 8 “ “ 28 x 61 “ “ 18 to 24 “ 136 “.....	50 00
“ 5, “ 10 “ “ 28 x 72 “ “ 24 to 30 “ 170 “.....	60 00
“ 6, “ 12 “ “ 28 x 84 “ “ 30 to 36 “ 204 “.....	70 00

Above prices include cans with bottom faucet and glass panel in the side of can, showing depth of cream.

DAIRY MILK COOLERS

"CHAMPION"

BUTTER
Is Better Flavored

Keeps
Better

Sells
Better

if made from milk
properly aerated
and cooled by the
"Champion"



CHEESE
Factories make
better Cheese and
more of it if

All
Patrons
Use
The

"Champion"

Patented

January 26, 1892.

SPECIAL CLAIMS

It is a perfect Aerater, removing all flavors arising from excessive cabbage, turnip or silo rations.

It is a complete deodorizer, removing the animal heat or cowy taste and all odors arising from the absorption by the milk of stable or other unpleasant gases.

It is a thorough cooler, reducing the temperature of the milk in one minute nearly to the temperature of the cooling medium.

It is equally well adapted to the use of any cooling medium, either running water, ice water, or, if a very low temperature is not required, ordinary well or spring water.

It is automatic, requiring no attention while in operation.

It is low down, greatest cooling surface at least height.

It is as simple in construction and easily cleaned as a pail.

It is durable; with proper care will last for years.

Its cost is small. It saves time and labor in handling milk for any purpose.

PRICE LIST

The following sizes of the Champion are gauged as nearly as possible to take care of the milk as fast as drawn from various sized dairies with the average number of milkers. Be sure to get one large enough, as best cooling results are obtained with low pressure of milk in the receiver.

No.	Capacity of Milk Receiver	Size of Dairy	Takes Care of Milkers	Price
1.	10 quarts	1 to 10 cows	2	\$ 7 00
2.	18 "	10 to 25 "	3	7 00
3.	34 "	25 to 50 "	5	8 00
4.	52 "	50 to 100 "	8	10 00

Prices include double cheese cloth strainers and spring pins.

STRAINERS

Strainers of the finest mesh wire cloth (100 meshes to the inch) furnished for each size at \$1.00 each.

SHIPPING WEIGHT AND DIRECTIONS

The Champion is well crated and delivered F. O. B. cars. The weights crated are as follows:

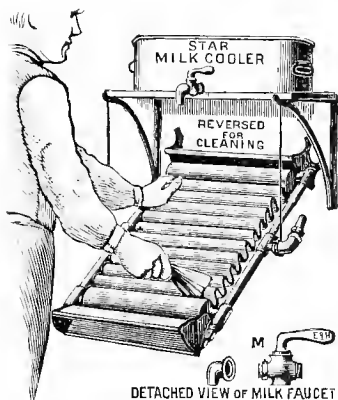
No. 1.—14 lbs. No. 2.—17 lbs. No. 3.—25 lbs. No. 4.—35 lbs.

We advise shipment of single coolers by express and of larger orders by freight

STAR MILK AERATER AND COOLER

STANDARD SIZES

Made in Two Styles



Plain Cooler, showing cleaning operation.

FIXED TROUGHS and **REMOVABLE TROUGHS**, either of which can be fitted with **SYPHON** or **ELEVATED WATER SUPPLY**, or both.

The water enters and discharges through frame, which hangs on centres. Cooler turns over to be cleaned and does not have to be removed from the brackets, saving time and handling. Short trough at the bottom of Cooler can be turned from one can to another without spilling milk.

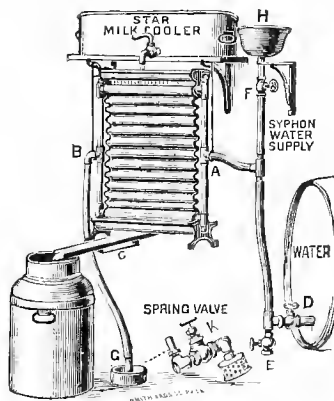
Each size Cooler is furnished with either of the following described styles of fittings, as purchaser may desire:

Plain Cooler.—Without any fittings, ready to connect with the size hose or iron pipe named.

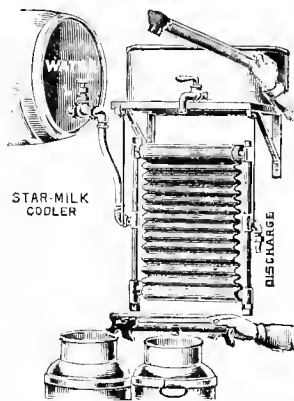
Syphon Attachment.—For use in places where water cannot be raised high enough to run through Cooler. When a low pump is used to furnish water, it can be pumped in a barrel on the floor, and the Syphon will draw it up through the Cooler.

When a spring furnishes the water, the Spring Valve is placed in the spring, and after starting, the Syphon will circulate water through the Cooler continuously.

Elevated Water.—As cut below, with ten-gallon Milk Tank, Star Milk Faucet, Brackets, Screws, Short Trough, Hose and Barrel Faucet, ready to operate with water above level of Cooler. When water is to be taken from a tank more than ten feet above Cooler the approximate height should be mentioned with the order.



Showing Fixed Troughs and Syphon



Showing Removable Troughs and Elevated Water Supply

For Prices and Capacities see next page

PRICES OF STAR MILK COOLERS

Standard Sizes: All Copper, Tin Coated

STAR MILK AERATOR AND COOLER

No. 0

For Use in Dairies of from 14 to 15 Cows and where two Men Milk.

Made in Two Styles.

Removable Troughs.

Price.....\$20 00

Prices include a twenty-quart milk tank, Star milk faucet brackets, screws, hose and barrel connection.

Syphons, extra.....\$7 00

Size 14 inches wide, 22 inches high, 1,016 square inches cooling surface. Will cool fifty gallons of milk per hour to 54°, with water at 52°.

Only the best grade of copper used.

No. 1

Twenty-two inches wide, twenty-four inches high, 1,200 square inches cooling surface; for three or four milkers. Will cool sixty gallons of milk per hour to 54°, with water at 52°.

**Removable
Troughs.**

Plain Cooler, for $\frac{3}{4}$ inch fittings.....\$25 00

Elevated Water, complete.....30 00

Syphon Attachment, complete.....37 00

No. 2

Twenty-four inches wide, twenty-seven inches high, 1,700 square inches cooling surface; for four or seven milkers. Will cool ninety gallons of milk per hour at 54°, with water at 52°.

**Removable
Troughs.**

Plain Cooler, for $\frac{3}{4}$ inch fittings.....\$27 00

Elevated Water, complete.....33 00

Syphon Attachment, complete.....40 00

No. 3

Twenty-eight inches wide, thirty-one inches high, 2,760 square inches cooling surface; for six or twelve milkers. Will cool 120 gallons of milk per hour to 54°, with water at 52°.

**Removable
Troughs.**

Plain Cooler, for 1 inch fittings.....\$40 00

Elevated Water, complete.....47 00

Syphon Attachment, complete.....54 00

No. 4

Thirty inches wide, forty-six inches high, 3,970 square inches cooling surface. Will cool 150 gallons of milk per hour to 54°, with water at 52°.

Fixed Troughs.

Plain Cooler, 1 $\frac{1}{4}$ inch fittings.....\$ 80 00

Elevated Water, complete, same fittings as smaller sizes, but with

15-gallon milk tank.....90 00

Syphon Attachment, complete.....100 00

We are prepared to furnish quotations on special sizes and shapes of cooling apparatus.

STANDARD TIN MILK COOLERS

Same Style as Star Coolers

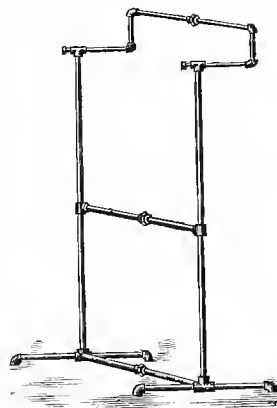
Standard Tin Cooler, plain	\$ 6 00
“ “ “ “ with 18-qt. milk tank, milk flow regulator, brackets, screws and hose.....	8 00
Standard Tin Cooler, plain, with syphon, complete.....	15 00
“ “ “ Barrel connection, extra	1 25
“ Copper Cooler, plain.....	9 00
“ “ “ with elevated water.....	15 00
“ “ “ syphon attachment	20 00

STAR MILK COOLER STANDS

These portable stands, made of galvanized iron pipe, are strong and durable, and will be found very convenient for supporting Coolers in operative position, when it is not desired to fasten brackets to wall or partition; they are high enough to set 40-quart milk cans under.

In ordering state size Cooler for which they are wanted.

Nos. 1 and 2. price.....	\$12 00
Nos. 3 and 4, “	15 00

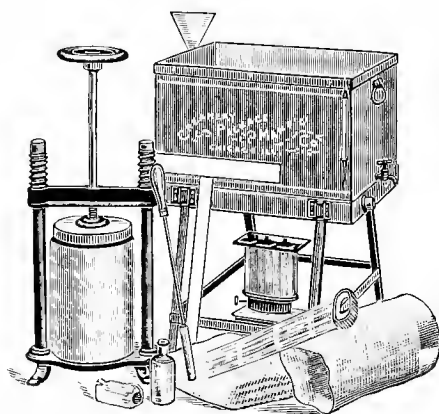


STAR MILK COOLER EXTRAS

NAME	PRICE	NAME	PRICE
No. 0 milk tank, with faucet plate.....	\$....	Elevated water connection for No. 4 Cooler \$....	
Nos. 1, 2 and 3 milk tank, with faucet plate		Syphon cup, Nos. 0, 1 or 2 Coolers	
No. 4 milk tank, with two faucet plates.....		“ “ No. 3 Cooler	
Star milk faucet.....		“ “ No. 4 “	
Milk faucet elbow.....		“ bowl, Nos. 0, 1, 2, 3 or 4 Coolers....	
1 pair No. 0 brackets.....		“ divider, Nos. 0, 1, 2, 3 or 4 Coolers.....	
1 pair Nos. 1, 2 or 3 brackets.....		“ barrel connection Nos. 0, 1 or 2 Coolers.....	
1 pair No. 4 brackets.....		“ connection No. 3 Cooler.....	
No. 0 syphon bracket.....		“ “ No. 4 Cooler.....	
Nos. 1, 2 and 3 syphon brackets.....		“ spring valve, Nos. 0, 1 or 2 Coolers.	
No. 4 syphon bracket.....		“ “ No. 3 Cooler.....	
Short trough.....		“ “ No. 4 Cooler.....	
1 foot white rubber hose, $\frac{3}{4}$ inch.....		“ supply pipe, No. 0 Cooler.....	
1 “ “ “ “ “ “		“ “ No. 1 “	
1 “ black “ “ “ “ “		“ “ No. 2 “	
1 “ “ “ “ “ “		“ “ No. 3 “	
1 “ “ “ “ “ “		“ “ No. 4 “	
Elevated water connection for Nos. 0, 1 or 2 Cooler.....			
Elevated water connection for No. 3 Cooler			

WRITE FOR PRICES

FAMILY CHEESE MAKING APPARATUS



A very simple Apparatus, adapted to the wants of all farmers or dairymen. So simple that any girl or boy of average intelligence can learn the process in a very few operations. It makes perfect cheese each time, whether 5 pounds or more.

The milk is heated by a coal oil lamp, which is easily kept under control. The heating vat is so constructed that the lamp gives all the heat that is necessary. The management of the heat is the secret of success in making good cheese. It does not take up quite as much room as an ordinary kitchen table. A lady can make cheese in the kitchen or pantry, and carry on her household work at the same time.

With each machine we send simple and full instructions how to make cheese successfully.

Each Apparatus is complete with Heating Vat, Press, Curd Knife, Lamp and Thermometer. Made of good material, strong and well finished.

The Apparatus is guaranteed to do the work exactly as represented.

SIZES AND PRICES

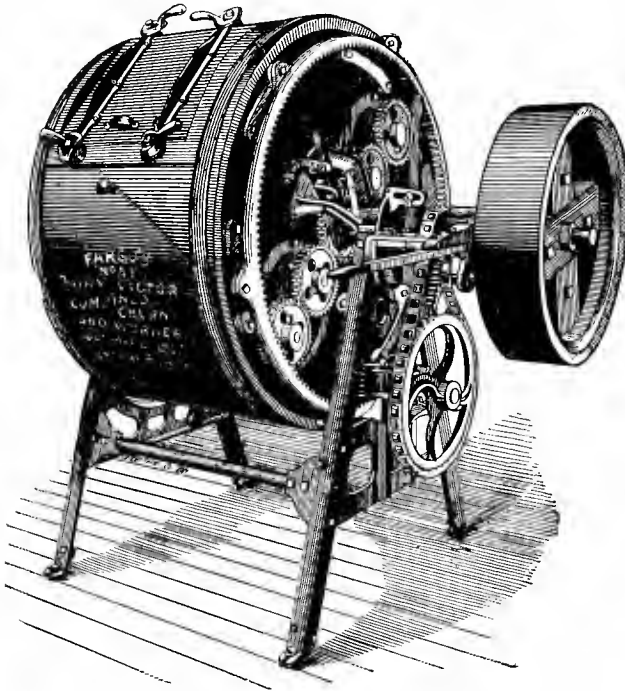
No. 1—Capacity 10 gallons, without press and hoops,	\$10 00,	with press and hoops,	\$14 00
" 2— " 20 " " " "	12 00,	" " " "	16 00
" 3— " 30 " " " "	14 00,	" " " "	18 00

Discount 10 per cent.

NET PRICES OF EXTRAS

NET PRICES OF EXTRACTS			
Curd Knife for No. 1.....	\$1 00	Special Wicks for Lamps, per yard.....	\$ 1 00
" " No. 2 or No. 3.....	1 50	Press, only, for No. 1.....	5 00
Galvanized Hoop (same size for all).....	1 00	" " No. 2.....	7 00
Tin Cylinder (same size for all).....	1 50	" " No. 3.....	10 00
Special Lamp for No. 1.....	1 00	Thermometers, each.....	25
" " No. 2.....	2 00	Funnel, each.....	25
" " No. 3.....	2 50	Wooden Stirrer, each.....	40
"Hot Iron" Test Iron.....50c			

“VICTOR” DAIRY COMBINED CHURN.



STYLE A1, A2 AND A3. FOR DAIRY USE ONLY.

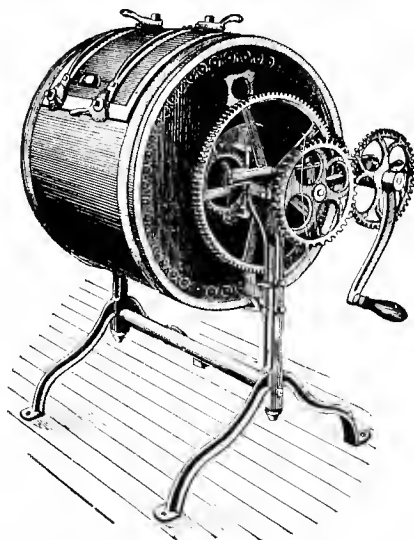
These churns have an 18-inch clutch pulley with 4-inch face, speed at 34.

For years the effort has been made to create a dairy churn that would bring the small dairy to a level with the factory in the production of first-class butter in a rapid and uniform manner. Taking the factory “Victor” as a guide, we have at last produced a strictly farmers’ Combined Churn and Butter Worker, the “Dairy Victor,” at a price that is within the reach of all, as complete in its operations as the now famous factory “Victor,” and can be run by dog, goat, sheep or pony power. These three strictly farmers’ churns are all furnished with pulley, and the A1 machine can be run by hand; a crank is furnished when desired.

SIZES AND PRICES OF DAIRY CHURNS.

No.	Diameter.	Length Outside.	Length Over all.	Capacity.	Shipping Weight.	Price.
A1	2 ft. 10 in.	1 ft. 8 in.	3 ft. 8 in.	10 to 60 lbs.	250 lbs.	\$ 60 00
A2	2 ft. 10 in.	2 ft. 4 in.	4 ft. 4 in.	10 to 80 lbs.	300 lbs.	80 00
A3	2 ft. 10 in.	3 ft.	5 ft.	10 to 100 lbs.	350 lbs.	100 00

“BABY” DAIRY COMBINED CHURN.



The “Baby” is a geared machine run by hand, and so constructed that two rollers and two simple lifting boards serve to do the churning, and the working of the butter with no change of gearing.

In working, the turning of the shaft puts the rollers in motion, lifts the butter from the bottom of the churn, places it upon the rollers, and stops the churn until the butter passes downward through the rollers, then starts the churn again, and lifts the butter as before to the top of the rollers, continuing the process as long as the crank is turned.

When the churning is to be done, the working rollers are fixed (do not turn on their axis), until the time for working the butter comes, and both in churning and working the turning of the crank is all the operator has to do, as the needed changes in the gearing are made automatically, entirely relieving the operator from all trouble of placing pins, moving levers or shifting belts, no shifting of parts being necessary.

One very attractive feature of this churn, which recommends it highly, is the ease with which the butter can be removed from it. When the working is completed, the door brought to the convenient point, the churn stopped, and the door removed, it will be found that the butter is massed on the lifting board and the rollers in front of the door in the most convenient position possible for removal, and the churn is held in that position by its own devices until the work is finished.

The chief objection that has been raised against combined churns and workers for small dairies and for farm use is their cost, and in producing the “Baby” we have sought to overcome this objection by bringing out a churn so low in price as to be within the reach of all.

The “Baby” is made with iron supports and frame, neat, light and strong.

PRICES.

No. 1, capacity 5 to 30 pounds of butter.....	\$25.00
No. 2, capacity 5 to 40 pounds of butter.....	30.00

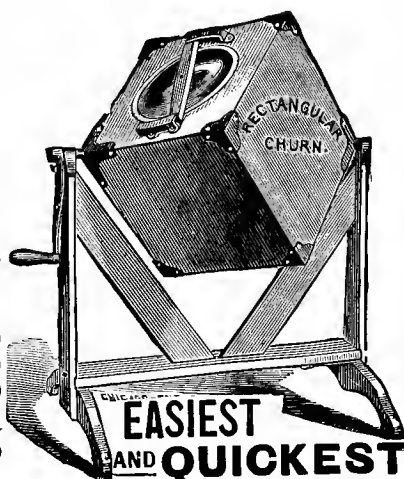
DAIRY BOX CHURNS

RECTANGULAR.

SIZES AND PRICES.

No. 0, holding 7 gallons.....	\$ 8 00
" 1, " 10 "	8 50
" 2, " 12 "	9 00
" 3, " 20 "	10 00
" 3½, " 26 "	12 50
" 4, " 40 "	16 00
" 5, " 60 "	23 00
Tight and loose pulley, 3 x 12..	3 50
" " " 3 x 14..	4 00

We can furnish churn stands for any style of dairy churns at from \$2.00 to \$5.00 each.



SQUARE

The Nos. 4, 5 and 6 are adapted to large dairies, and are more convenient than the No. 5 Rectangular. They have a crank on one side, a long gudgeon for pulleys on the other. Strong bands and rods running around the churn make them very substantial.

SIZES AND PRICES.

No. 0, holding 7 gallons.....	\$ 8 00
" 1, " 10 "	8 50
" 2, " 12 "	9 00
" 3, " 20 "	10 00
" 3½, " 26 "	12 50
" 4, " 40 "	16 00
" 5, " 60 "	23 00
" 6, " 80 "	26 00
Tight and loose pulley, 3 x 12.....	3 50
" " " 3 x 14.....	4 00

Prices given are without pulleys.



BARREL CHURN EXTRAS

"IDEAL" OR "FAVORITE"

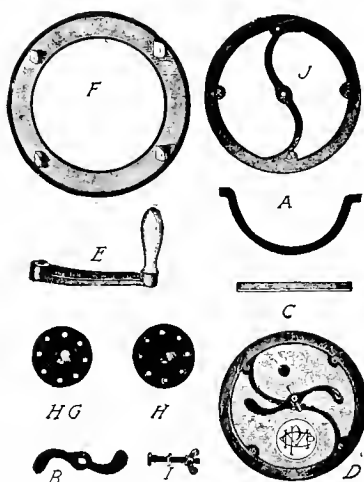


FIG. F. BARREL RIMS.			
Sizes.....	Nos. 0 and 1	2 and 3	4 and 5
Price.....	50 cents.	60 cents.	75 cents.

FIG. J. COVER RIMS.			
Sizes.....	Nos. 0 and 1	2 and 3	4 and 5
Price.....	25 cents.	30 cents.	40 cents.

FIG. E. CRANKS.			
Sizes.....	Nos. 0, 1 and 2	3, 4 and 5	
Price.....	25 cents.	30 cents.	

FIG. A. BALES.			
Sizes.....	Nos. 0, 1, 2 and 3	4 and 5	
Price.....	10 cents.	20 cents.	

FIG. C. CORK STRIPS FOR COMPLETE COVER.			
Sizes.....	Nos. 0	1	2
Price.....	20c.	23c.	25c.

FIG. HG. SHORT TRUNNIONS AND FIG. H. CRANK TRUNNIONS.			
Sizes.....	Nos. 0, 1, 2 and 3	4 and 5	
Price.....	10 cents.	26 cents.	

FIG. B. LOCK BUTTONS.	
Each.....	8 cents.

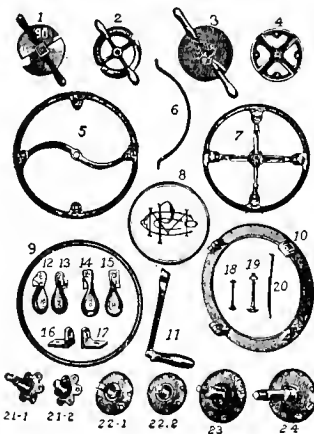
FIG. I. COVER BOLTS.	
Sizes.....	Nos. 0, 1 and 2
Price.....	8 cents.

FIG. D. COVERS COMPLETE.	
Sizes.....	Nos. 0
Price.....	60c.

"ACME" AND "BOSS"

FIG.	DESCRIPTION.	FOR CHURNS.	EACH.
1	Acme Bail Top Handles, all sizes,		\$0 25
2	" Skeleton	No. 8	20
3	Boss	No. 0	25
4	" Skeleton	1	30
5	Cover Rims, Acme,	2	35
	" " "	3	40
	" " "	4	50
	" " "	5	60
6	Bails, Acme,	Nos. 0, 1 and 2	10
	" " "	3	15
	" " "	4 and 5	20
7	Cover Rims, Boss,	No. 0	25
	" " "	1	30
	" " "	2	35
	" " "	3	40
	" " "	4 to 7	50
	" " "	5½, 8 and larger,	60
8	Balance Weights,	all Churns,	15
9	Churn Rims, Acme,	Nos. 0 and 1	50
	" " "	2	60
	" " "	3	75
	" " "	4	90
	" " "	5 and larger,	1 00
10	Churn Rims, Boss,	Nos. 0 and 1	50
	" " "	2	60
	" " "	3	75
	" " "	4	90
	" " "	5, 6 and 7	1 00
	" " "	5½, 8 and larger,	2 00
11	Crank, Boss or Acme,	Nos. 0 to 3	25
	" " "	4 and larger,	30
12	Left Ear, Acme,	Nos. 0 to 3	05
13	Right " " "	0 " 3	
14	Left " " "	Nos. 4 and 5	
15	Right " " "	4 " 5	
16	L-ft " " "	5½ and larger	07
17	Right " " "	5½	
18	Cover Bolts, Acme or Boss, Bail T. H.		05
19	" " " " " Sk't'n		

FIG.	DESCRIPTION.	FOR CHURNS.	EACH.
20	Keys, Boss,	Nos. 0 to 3	05
	" " "	4 and 5	06
	" " "	8	08
21-1	Crank Trunnions, Boss,	Nos. 0 and 1	20
21-2	Short " " "	0 " 1	15
22-1	Crank " " "	2, 3 " 4	25
22-2	Short " " "	" " 3	15
23	Crank " " "	5, 6 " 7	35
24	Shaft " " "	for 12 in. Pulley,	50
	" " "	14 " "	75
	" " "	18 " "	1 00
Complete Cork for Cover,		any size, each,	25

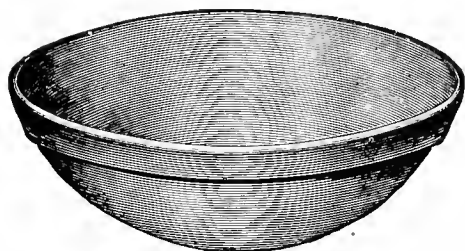


COVERS COMPLETE

"ACME"		"BOSS"	
No. 0	\$0 60	No. 0	\$0 75
1	70	1	75
2	80	2	1 00
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	
11		11	
12		12	
13		13	
14		14	
15		15	
16		16	
17		17	
18		18	
19		19	
20		20	
21		21	
22		22	
23		23	
24		24	

Covers for our "Acme Bail" run one size larger for each size of churn than those of other manufacturers. All cover castings, except top handle, are galvanized—hence price lists of extras are not identical. When ordering repairs, give number of churn, and the number, or letter, on casting required. If casting is not numbered, describe as fully as possible. If cover or rim is required, give exact diameter, measuring from inside of opposite ears.

BUTTER TRAYS.



POLISHED MAPLE BOWLS

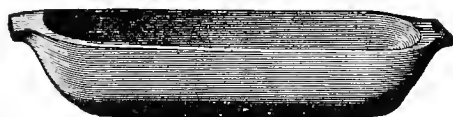
Made of the best Michigan hard maple by the latest improved bowl machinery.

Our bowls are *extra deep, heavy rimmed and nicely polished.*

SIZES AND PRICES.

11 inch.....	each, \$0	25
13 ".....	"	30
15 ".....	"	35
17 ".....	"	40
19 ".....	"	45
21 ".....	"	50

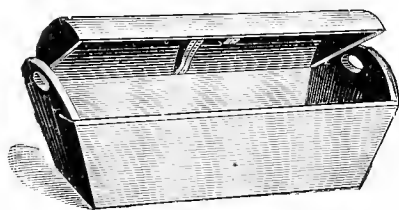
RICHARDI BUTTER TRAY.



SIZES AND PRICES.

No. 0, size $17\frac{1}{2} \times 10$	each, \$0	40
" 1, " $19\frac{1}{2} \times 10\frac{1}{2}$	"	50
" 2, " 21×11	"	75
" 4, " $23\frac{3}{4} \times 13$	"	1 00

COVERED BUTTER TRAY.



It is designed to hold the butter when taken from the churn to be re-worked and packed for market.

The oval cover, which increases the capacity of the tray one-third, is made to fit tight, to exclude bad air and dust.

FACTORY SIZES.

No. 1, holding 75 pounds	\$3	00
" 2, " 125 "	4	00
" 3, " 175 "	5	00

FAMILY SIZES.

No. 4, holding 20 pounds	\$2	00
" 5, " 40 "	2	50
" 6, " 60 "	3	00

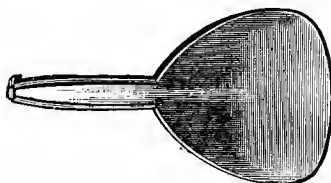
DAIRY LADLES

SMALL "DAIRY"



Each\$0 20 Per dozen\$2 25

"NEW YORK"



Small.....each, \$0 20 Medium.....each, \$0 30
Large.....each, \$0 40

"CORRUGATED"



Each\$0 15
Per set of two..... 25

These ladles are made from maple and ash,
nicely finished.

WOODEN SPOONS

Made from clear spruce wood and nicely polished.

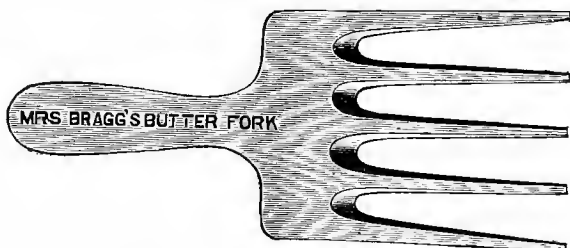
Can be used to advantage in stirring cream and milk in small vessels, and mixing in milk color.

They will also be found valuable for kitchen use, in stirring lemonade, etc., etc.

14 in., each, 10c.; doz., \$1.00; 17 in., each, 15c.; doz., \$1.25



MRS. BRAGG'S BUTTER FORK

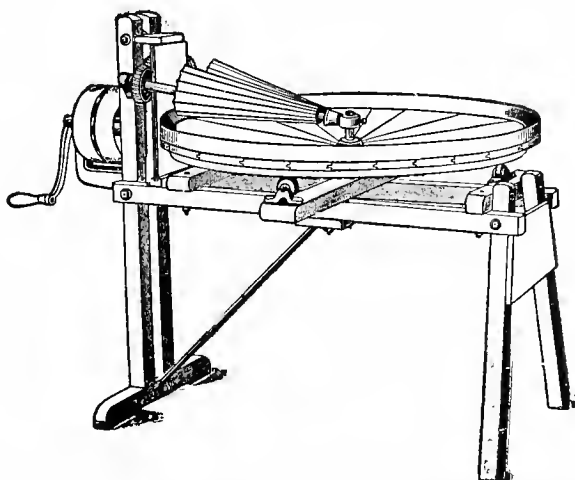


For taking lumps of butter from the churn, lifting from the worker to the tub, this fork is not excelled by anything made.

Each\$0 25 Per dozen\$2 50

DAIRY BUTTER WORKERS

"MASON" HAND OR POWER



The increase of the use of the small separator in the dairy has created a demand for hand or power workers of smaller capacity than that of our factory size. We are now prepared to fill orders for two sizes smaller than the factory worker.

SIZES AND PRICES

No. 0.	3-ft. table, galvanized castings, capacity, 60 lbs., pulley 12x3 in., speed 60 revolutions, weight 140 lbs.	\$25 00
No. 1.	4-ft. table, plain castings, capacity, 75 lbs., pulley 12x3 in., speed 60 revolutions, weight 290 lbs.	35 00
No. 1.	4-ft. table, galvanized castings, capacity, 75 lbs., pulley 12x3 in., speed 60 revolutions, weight 290 lbs.	45 00

"REID"

PRICE

No. 1, size 23x36 in. and 2½ in. deep, inside; capacity, 50 lbs.; weight, 45 lbs.	\$10 00
" 2, " 20x36 " 2½ " " " 30 " " 29 " "	8 00
" 3, " 17x27 " 2½ " " " 20 " " 25 " "	7 00
" 4, " 14x23 " 2½ " " " 10 " " 20 " "	6 00



Three pounds can be worked in any of the above machines, as well as a larger quantity.

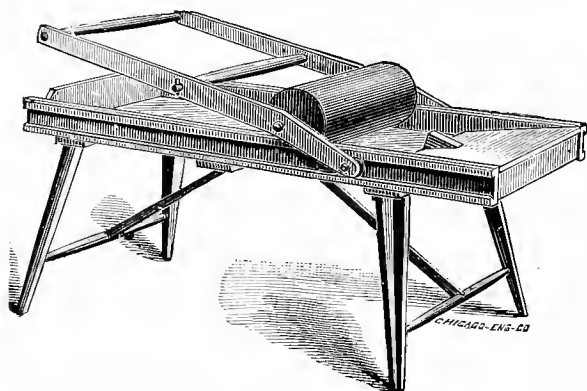
We also manufacture larger sizes, specially designed for mixing, re-working and coloring, or for creamery use.

No. 0, size 23x37 in. and 3 in. deep, inside; capacity, 75 lbs.; weight, 60 lbs.	\$12 00
No. 00, size 23x56 in. and 3 in. deep, inside; capacity 112 lbs.; weight, 80 lbs.	15 00
No. 000, size 23x72 in. and 3 in. deep, inside; capacity 150 lbs.; weight, 100 lbs.	18 00

When desired, we can send legs along with any size machine for \$4.00 extra, which can be set up after arrival at destination.

BUTTER WORKERS.

IMPROVED EUREKA.



The Eureka worker is so constructed that all portions of the butter are equally worked with an even pressure. The brine and buttermilk are drawn off, the butter rolled out into a thin sheet, a portion of salt sifted on, and then by a quick backward motion of the roller the butter is turned bottom

side up or folded in the tray, rolled out again, more salt sifted on, again turned and rolled. This worker has folding legs, same as on the Lever worker.

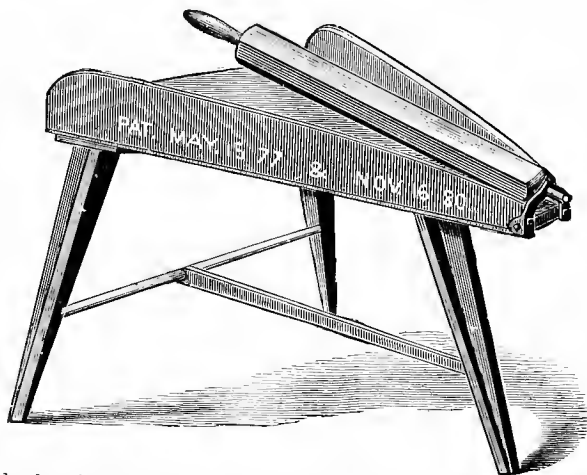
SIZES AND PRICES.

No. 1, family size, will work 25 pounds, weight, 70 pounds.....	\$10 00
" 2, dairy " " " 50 " " 80 "	12 00
" 3, factory " " " 75 " " 100 "	15 00
" 4, " " " " 100 " " 130 "	20 00

LEVER.

This cut represents the Lever worker with our patent folding legs, which can be taken down and set up again in a moment's time by anyone; and when set up it stands firm and substantial. It has no equal, because it has more good points and fewer poor ones than any other, and is, therefore, the most deservedly popular butter worker in the country; and what is more to the purpose, it has been purchased and practically tested

from day to day by hundreds of dairymen in all parts of the country, and is by them universally commended. With it the butter can be re-worked and freed from the last vestige of buttermilk, and the grain of the butter preserved intact.



SIZES AND PRICES.

No. 0, 20 inches wide, will work 15 pounds, weight 30 pounds.....	\$ 5 00
" 1, 30 " " " " 25 " " 40 "	6 50
" 2, 40 " " " " 35 " " 60 "	7 50
" 3, factory size, " " 60 " " 80 "	12 00

THE "IDEAL" BOILER AND STEAM FEED COOKER



The long felt need of a good, reliable farm boiler for cooking feed, heating water, etc., is supplied by The IDEAL BOILERS, which are made from boiler iron, and have regular lap-welded boiler flues, making them durable, rigid and strong in all their parts, and will last, with ordinary care, a life-time. They are well riveted and corked, and while we test these boilers at 100 lbs. hydraulic pressure, they are only intended for use when low pressure is required.

The IDEAL BOILERS are claimed to be the best in the market for the following reasons: They are made of heavier and better material, and as they have a number of boiler flues passing directly through the water, thereby distributing the heat, they require less fuel than other boilers, and the boiler is provided with grates, which adapts them to the burning of all kinds of fuel, such as coal, wood, corn-cobs, etc. Any careful buyer can readily see that the Eureka boilers, or feed cookers, manufactured from the quality and weight of the material used in these boilers, are capable of running and giving good service for an unlimited number of years.

The IDEAL STEAM BOILER will cook or steam any kind of food placed in a barrel or vat, with but little care and without danger of burning, thus overcoming the objections to a kettle or cauldron. It will steam *dry corn stalks and straw* so that they will become soft and palatable, and *cook potatoes* so as to render them digestible and valuable for food. It will also enable a farmer to *save one-third to one-half of his corn* and other feed, and at the same time make his stock thrive better. It will *save labor in feeding*, rather than increase it, as stock fatten much faster when their feed is cooked.

SIZES AND PRICES.

Size No.	Diameter of Shell.	Height of Shell.	No. of 2-inch Flues.	Length of Boiler Over All.	Shipping Weight.	Price.
1	19 inches	40 inches	9	54 inches	325 pounds	\$40 00
2	19 "	44 "	13	58 "	370 "	45 00

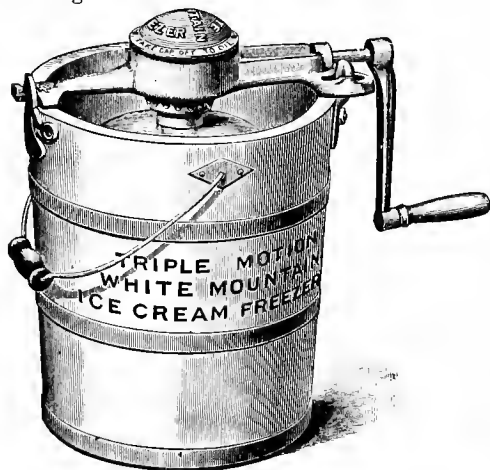
Steam gauge and glass water gauge complete, fitted, extra.....\$6 00

The trimmings include two gauge cocks, blow-off cock, pump for supplying the boiler with water, safety valve, 2 feet 6 inch suction hose, 3 feet steam pipe, with valve to convey steam to barrel or vat, for cooking feed or boiling water.

Please Write for Greatly Reduced Prices on These Boilers

ICE CREAM APPARATUS

There are comparatively few communities where the possibilities of the ice cream business have been taken care of. It is easily made, the demand is constantly increasing, and the profits are large.



HAND OR POWER

This improved pattern is made in the most substantial manner, the frame and base being of iron, can of copper, the tubs of the best seasoned cedar, and the gears are 6 inches clear of salt and ice, and can be operated by hand, horse, steam power, gas engine or motor.

PRICE

Complete with Patent Spiral Dasher.

Hand Power

Steel Can.	Copper Can
40-quart . . . \$	\$

Power, T. and L. Pulleys

Steel Can.	Copper Can.
40-quart . . . \$	\$
Single Pulleys 18 in. di-	
ameter, 4 in. face	
Tight and loose pulleys	

EXTRA FREEZING APPARATUS

This apparatus consists of cedar tub, can, iron lid and patent spiral dasher.

PRICES

40-quart, steel can	\$
40 " copper can	

ICE CREAM FREEZERS

HAND POWER

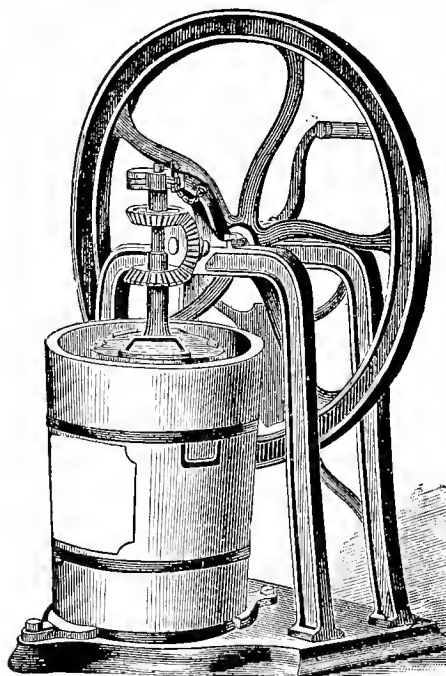
SIZES AND PRICES

White Mountain

1-qt	\$
2 "	
3 "	
4 "	
6 "	
8 "	
10 "	
12 "	
15 " with fly wheel	
20 " " " "	
25 " " " "	

Lightning

1-qt	\$
2 "	
3 "	
4 "	
6 "	
8 "	
10 "	
12 "	
14 "	
14 " with fly wheel	
20 " " " "	
20 " no " "	



See Price Current for Prices

ICE CREAM APPARATUS

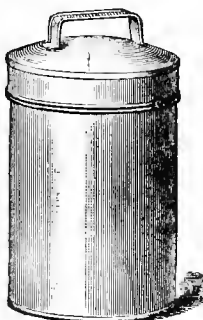
PACKING CANS

DOUBLE BOTTOMS

Made of extra heavy tin, with additional galvanized iron bottoms; 20 to 40 quart have wrought iron tinned rims around top of can and tin malleable iron handles.

1-quart, price each.....	\$....
2	4
4	6
6	8
8	10
10	12
12	16
16	20
20	25
25	30
30	40

Above Cans fit our Cedar Tubs.



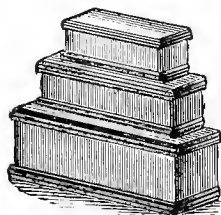
MALLEABLE BOTTOMS

The bottom and rim on body are made of malleable iron and are heavily tinned. The cover is malleable iron in one piece, provided with improved catch and malleable iron handles.

PRICE LIST

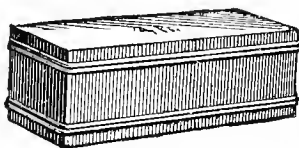
	Outside Diam.	Height	Price
2-quart	4 1/2	10	\$....
4 "	5 1/2	12 1/2	....
6 "	6 1/4	14	....
8 "	7	14 1/2	....
10 "	7 1/4	16 1/2	....
12 "	8	19 1/2	....
16 "	8 1/2	20	....
20 "	9 1/2	21 1/2	....
30 "	11	22 1/2	....
40 "	12	24	....

ICE CREAM BRICKS



"COMMON"

Pts.	1 Lid	2 Lid
1	\$...	\$...
2		
3		
4		
5		
6		
8		



"EXTRA" GRADE

Pts.	1 Lid	2 Lid
1	\$....	\$....
2		
3		
4		
5		
6		
8		



"ORNAMENTED"

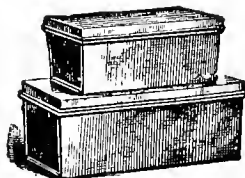
These moulds are made of XXXX tin and well soldered. The covers are of copper of one piece, tinned inside and out.

Pints.....	2	3	4	5	6	8
Each.....	\$....	....	....	....	....	....

"TAPERED"

Made of XXXX tin.

Pints	1	2	3	4	5	6	8
Each .....	\$....	....	....	....	....	....	....



"SECTIONAL"



These moulds are used extensively for serving cream in form of individual bricks at suppers, balls, parties, etc., hold one quart, divided into sections, thereby cutting without waste.

1 quart, double lid, each, ..c.; per dozen, \$.... Single lid, each, ..c.; per doz., \$....
Marked 5 or 6 divisions to the quart.

SEE PRICE CURRENT FOR PRICES

ICE CREAM APPARATUS

PACKING TUBS

EXTRA HEAVY CEDAR

These tubs are made of the best seasoned cedar, bound with galvanized iron hoops, and fitted with galvanized handles; the bottoms being dovetailed, insures them against accident from rough handling.

BAIL HANDLES

INSIDE MEASURE

Size	Depth	Diam. Bottom	Diam. Top	Price, each
1-quart	9	6 $\frac{3}{8}$	7	\$....
2 "	12 $\frac{1}{2}$	6 $\frac{3}{8}$	8	....
3 "	13	7 $\frac{1}{4}$	8 $\frac{1}{2}$	....
4 "	14	8	9 $\frac{1}{8}$	....
6 "	15 $\frac{1}{2}$	9	10 $\frac{1}{2}$	....

DROP HANDLES

INSIDE MEASURE

Size	Depth	Diam. Bottom	Diam. Top	Price, each
8-quart	17	10	11 $\frac{1}{8}$	\$....
10 "	18	10	11 $\frac{1}{8}$	....
12 "	19 $\frac{1}{2}$	10 $\frac{5}{8}$	12 $\frac{1}{2}$	....
16 "	21 $\frac{1}{2}$	11 $\frac{7}{8}$	13 $\frac{7}{8}$	....
20 "	23 $\frac{1}{2}$	12 $\frac{1}{4}$	14 $\frac{3}{4}$	....
25 "	24 $\frac{1}{2}$	13 $\frac{1}{4}$	15 $\frac{1}{4}$	....
30 "	25	14 $\frac{1}{4}$	16 $\frac{3}{4}$	....
40 "	27	16 $\frac{1}{2}$	18 $\frac{1}{2}$	....

All tall packing and freezing cans will fit the above tubs.

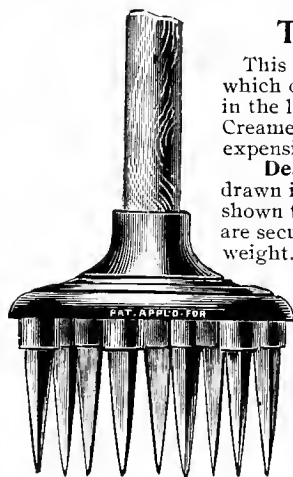
THE AMERICAN ICE CRACKER

This cut shows the "business" end of the American Ice Cracker, which during the past three years has made an enviable record in the localities where it has been in use. Just the thing for Creameries, Ice Cream Factories and Dairies. Durable and inexpensive.

Description. The points are made of $\frac{1}{2}$ -inch tool steel, drawn into triangular points and tempered as experience has shown to give the best results. The head into which the points are securely fastened and socket for handle are of cast iron, for weight.

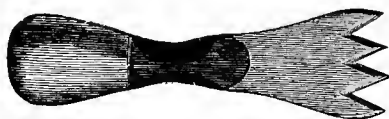
Operation. Place the ice in the box and then use the cracker to reduce it to the size required.

Advantages. One man or boy can do more in making ice fit for the freezer or packing purposes than two men can with axes or sledges, and with little waste in the form of snow ice. The size of the pieces will be uniform, and the fineness depends on the time they are subjected to the action of the cracker. The labor of using the cracker is far less than any previous mode of crushing ice.



ICE CHISELS

Ice chisels.....each, \$0 50



For other Ice Tools see pages 291 to 295.

ICE CREAM APPARATUS

THE "CREASEY" ICE BREAKERS



No. 50
Power

No. 51
Power

No. 52
H & P

No. 52H
Hand

No. 54
H. & P.

No. 55
Hand

No. 56
Hand

OF THE LARGER SIZES NEARLY 2,000 IN USE

Universally used and endorsed by the largest consumers of broken ice throughout the world, and recognized as the standard machine for the purpose.

SIZES, DESCRIPTION AND PRICES

No. "50" Machine,
for Power only.
Capacity,
Size Cake—14x28 inches.
Price, \$112.50—f. o. b. factory.

No. "51" Machine,
for Power.
Capacity,
Size Cake—14x18 inches.
Price, \$96.00—f. o. b. factory.

No. "52" Machine,
Hand or Power.
Capacity,
Size Cake—14x14 inches.
Price, \$81.00—f. o. b. Chicago.

Special No. "52 H" Machine,
Hand only.
For making ice very fine (to size of chestnuts) special teeth.
Capacity,
Size Cake—14x14 inches.
Comb, 14 $\frac{1}{4}$ inches long, 12 teeth.
Price, \$73.00—f. o. b. factory.

No. "52 P" Machine,
For Power only.
Capacity,
Size Cake—14x14 inches.
Price, \$73.00—f. o. b. factory.

Special No. "52" Machine,
Hand or Power.
(for breaking ice very fine)
Capacity,
Size Cake—14x14 inches.
Comb, 14 $\frac{1}{4}$ inches long, 13 teeth.
Price, \$85.00—f. o. b. factory.

No. 56.....	\$28 00
No. 57.....	20 00

Special No. "52 H" Machine,
Hand only.
Capacity,
Size Cake—14x14 inches.
Price, \$79.00—f. o. b. factory.

Special No. "52 P,"
Power only.
(for breaking ice very fine.)
Capacity,
Size Cake—14x14 inches.
Comb, 14 $\frac{1}{4}$ inches long, 12 teeth.
Price, \$79.00—f. o. b. factory.

No. "53" Machine
For Hand or Power.
Capacity,
Size Cake—11x14x54 inches.
Price, \$67.50—f. o. b. factory.

No. "53 H," for Hand only,
Capacity,
Size Cake—11x14 inches.
Price, \$60.00—f. o. b. factory.

No. "54" Machine,
(for Hand and Power)
Capacity,
Size Cake—10x12 inches.
Price, \$54.00—f. o. b. factory.

No. "54 H" Machine,
for Hand only.
Capacity,
Size Cake—5x6 inches.
Price (boxed), \$48.00—f. o. b. factory.

No. "55" Machine,
for Hand only.
Capacity,
Size Cake—10x10 inches.
Price (boxed), \$37.50—f. o. b. factory.

No. 3	\$10 00
No. 4	6 00

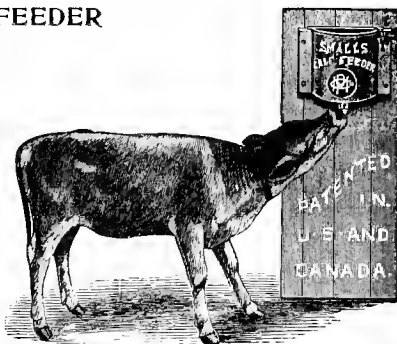
CALF FEEDERS AND WEANERS

SMALL'S CALF FEEDER

This new article of manufacture was designed and has been perfected by the inventor for feeding milk to young calves in a natural way before they are old enough to eat and drink otherwise, and is to the calf what the nursing bottle is to the babe, a substitute for nature.

PRICE

By express..... each, \$2 50
By mail..... " 3 10
Nipples, 25 cents each, or five for \$1 00



BROWN'S CALF FEEDER

Cheap—Simple—Perfect. Can be attached to any pail, trough or bucket. A natural substitute, to which the calf adapts itself immediately.

PRICE

Single.....\$ 25
Per dozen..... 2 50

RICE'S PATENT CALF WEANER

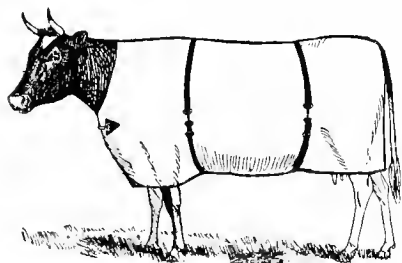
For preventing calves and cows sucking themselves or each other. It is no hindrance to either eating or drinking, does the animal no injury; has been thoroughly tested, is used and endorsed by the best stock raisers.

PRICE

No. 1. For calves till one year old, \$0 50; per doz., \$5 00
No. 2. For one or two years old, 75; " 8 00
No. 3. For full grown animals, 1 00; " 10 00



"STAY ON" CATTLE COVERS

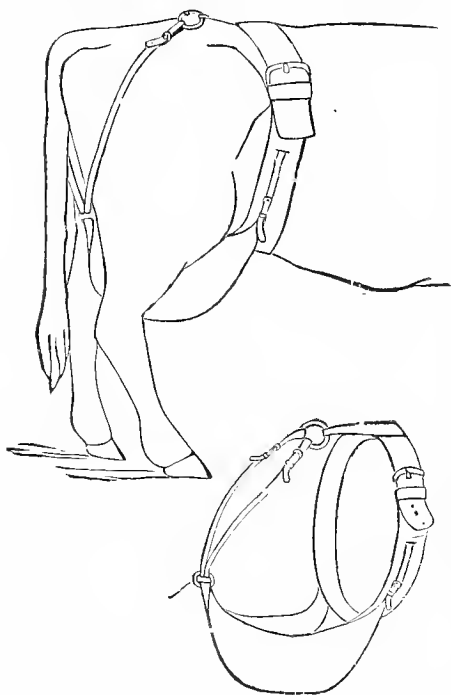


We have had numerous calls for Cattle Covers, for protecting cattle from flies and other insects, and have added them to our line. We have them in two styles—Burlaps and Canvas. They are strong, well made, and **Stay On**.

PRICES

Burlaps.....each, \$0 75
 per doz., 7 50
Canvas.....each, 90
 per doz., 9 00

THE UNIVERSAL UDDER PROTECTOR AND CALF WEANER.



The Universal Udder Protector and Calf Weaner is a device to prevent the accumulation of manure and filth on the bag of a cow. It consists of a well made canvas bag, made from 8-ounce duck, closely fitting and completely covering the bag, and securely retained in position by a suitable supporting apparatus that is simple and easy of adjustment. The bags are made in three different sizes, and will fit all ordinary cows.

This device is also an effectual calf weaner, making it impossible for a calf to get access to the teats, and preventing cows so disposed from sucking themselves from the same reason. Besides the above points, the Universal Udder Protector protects the teats from cold, thus preventing them from becoming chapped and sore, and causing the milk to flow more freely. It is valuable as a sanitary measure, as will be obvious from the above mentioned facts. Owners of milch cows cannot afford to be without this valuable accessory of the dairy product.

For one, any size..... \$ 2 50
For one dozen 20 00

METAL LABELS FOR CATTLE, SHEEP AND HOGS

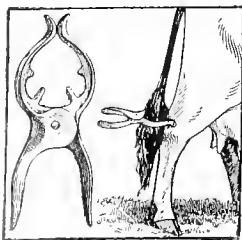
TO FASTEN IN ANIMAL'S EAR.

Your name on one side and numbered from one upwards on reverse side, or any numbers desired. They are very light and will not tear out. They are also used for horses and cattle. If animals stray from home or become mixed with a neighbor's flock or herd, they can be easily found and identified. By the numbers a record can be kept of age or number of registry if stock is pure bred. Attached to ears with oval, spring belt punch.



One hundred, with name and numbers.....	\$2 00
Fifty, with name and numbers.....	1 25
Twenty-five, with name and numbers.....	75
Punch for perforating the ear.....	1 25

If there are more than six letters in your name your initials only can be put on the labels.



Victor Cow Clip.

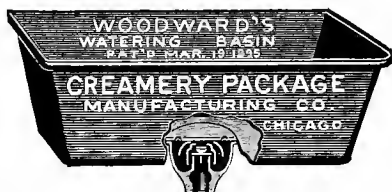
This little device effectually prevents being lashed in the face while milking.

To attach, it is grasped with one hand, and enclosing the tail is allowed to spring together so as to clasp around the large cord of the cow's leg at the gambrel joint, thus securely holding the tail to the leg.

Retail price—Single.....	\$0 30
“ “ Four	1 00

“WOODWARD” WATERING BASIN

The advantages of having a constant supply of water always before the cows are too well known to need argument. Every farmer knows that of every 100 pounds of milk about 87 lbs. are simply water, and that however well the cow may be fed, without this water she cannot give the milk. The normal temperature of the cow is much higher than man's, and all the water she drinks must be raised to that temperature before digestion can go on. Therefore, it don't pay to turn cows out in winter to fill themselves with cold water. Every farmer has also noticed that when cows are watered out of doors on extreme cold days, some cows will go back into the stable without drinking, and when out the following day are abnormally thirsty and will rush to the water and swill down a barrel of the cold water, and as a result they go back to the stable to stand and shiver for hours. No cow ever makes milk when shivering.



SOME OF THE ADVANTAGES OF THE WOODWARD WATERING BASIN

The bottom is smooth and easily cleaned. The strainer and trap prevent dirt from getting into the pipes. The inlet is so small that the cow sips the water as it comes slowly in, thus always getting fresh water.

The small inlet causes the cow to drink slowly, which is much better than to swill it down. With these basins cows drink after their evening feed, a thing as beneficial as to drink in the day. People using these basins report from five to twelve per cent. increase in production of milk. The inlet pipe screws into the bottom and they never leak. The shape of the basin prevents the water being slopped over, and the stable is kept dry. The stand-pipe or valve prevents any overflow of basins, and where supply comes from springs, keeps up a constant flow through the system.

The water being prevented from passing from one basin to another entirely precludes the spread of contagious diseases. When to be used in cold stables the valve can be removed in an instant, and then the water can be drawn out on cold nights.

They are just as good for watering horses as other stock. When so set as to have no more than one inch of water in basin, it can be safely used in horse stables, and horses placed in stables ever so warm with no fear of injury. It is absolutely perfect and is taking the place of all others wherever seen.

PRICE LIST

Price of each Basin with strainer and trap, well painted, and with valve and seat, valve cage of white metal, as shown in cut, and with saddle and clip for attaching to main pipe..... \$2 00

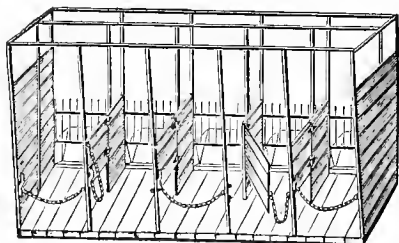
Supply Tank, galvanized, 24 x 12 x 10, with inlet and outlet connections.... 2 00

Ball-valve and float, brass..... 2 00

We will also sell pipes and fittings at lowest rates and will cut pipes to fit any order from measurements furnished, but will not be responsible for anything except that they shall be strictly according to plan sent.

Any purchaser who, after six months' use, does not think them the best investment he ever made, and that they are not fully paid for by the increased production, may return them and we will refund his money. Isn't that fair? It ought to convince.

—SEND FOR SPECIAL PRINTED MATTER—



THE “BIDWELL” ADJUSTABLE STALL

Is the only fastener that combines comfort, cleanliness and convenience. It defies competition.

PRICE

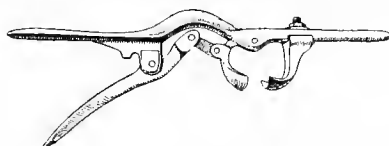
Stalls K. D. complete with partitions, manger, etc., F. O. B. factory.....each, \$2 50
Same with iron fronts " " " 4 00
For painting stalls extra..... " 50

DEHORNING TOOLS

"PERFECTION" CALF DEHORNER

The Perfection Calf Dehorner fills a long-felt want among stockmen, as it takes the place of acids and is cheaper and much more humane than dehorning old cattle.

So
Simple that
it can
be Operated
by anyone



So
Cheap it is
within
the Reach of
all

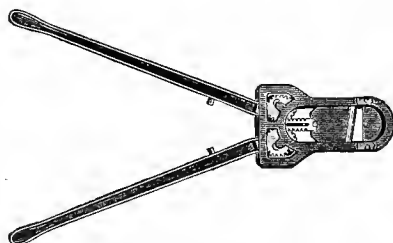
Perfection Calf Dehorners, including sample box of Perfection Cream, and full instructions for operating, etc.

Net, plain.....\$3 50
Net, nickel-plated.....5 00

Perfection Cream, per lb.....\$0 50
Discount on five-pound orders.

Every Perfection Dehorner guaranteed for one year.

THE IMPROVED DEHORNING CLIPPER



Size 1x1 in., guaranteed to cut any horn.....\$3 50

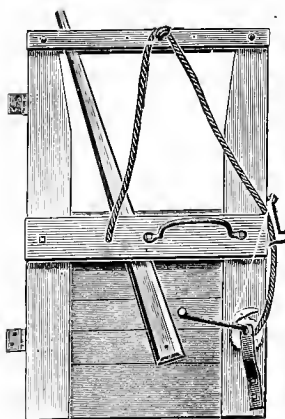
It clips the horn in one-fifth the time required in sawing, with correspondingly less pain. It is guaranteed not to crush the horn, but to clip smooth and leave the head just like mulies. The accompanying cut shows the latest improvement in this machine—a geared head, by which the knives move toward each other as the operation is performed. This device doubles the power of the machine. In other words, the work is done with one-half the power required by any other dehorner, with no undue strain on any part of the instrument. It is made of the best materials, nickel-plated and highly polished. The blades are made of crescent extra tool steel, and we furnish them for \$1 00 per set, by express. In ordering, give date you purchased clipper, please.

The second is the most popular size, as it is large enough for most all purposes, and is lighter and easier to handle.

DISSTON & SON'S DEHORNING SAW

Neatly Japanned Steel Frame. Wood Handle
Fitted with a 10-inch Blade.

Price, each.....85c.
Extra Blades, each.....15c.



"Champion"

IMPROVED "CHAMPION" HEAD HOLDER

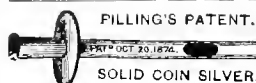
is the simplest and handiest device for holding cattle ever invented. Provided with hinges, it can be attached to any post, corner of barn, or stationary chute, and at the same time be perfectly secure. It weighs but eighty pounds, and can be carried in a buggy or spring wagon, making it especially useful to those wishing to dehorn in different places. Swinging as it does, the cattle can be allowed to pass quickly, and it is immediately ready for another.

Price, complete.....\$6 00

PERFECTION CHUTE AND HEAD HOLDER

will securely hold any sized animal. It is made without wheels, can be loaded into a wagon box, and is just the thing for dehorning. It holds cattle in a natural, easy position. Chutes shipped ready for use on arrival, at prices so low that all can afford to purchase one, and by putting a bottom slanting in it, hogs can be loaded into a wagon, or caught and rung, or for any other purpose, thus making it a useful stock handling help. Chute weighs 300 pounds.

Price.....\$12 00



PILLING'S PATENT.

SOLID COIN SILVER.

MISCELLANEOUS

PILLING'S COIN SILVER MILKING TUBES

For sore and obstructed teats and hard milking cows. These tubes will be sent postage paid to any part of the United States or Canada on receipt of price.

Price, $1\frac{3}{4}$ -in., each.....50c | Set of four tubes, ($1\frac{3}{4}$ -in., each)....\$2 00

OTHER SIZES AND PRICES

$2\frac{1}{4}$ -in., each.....\$0 65 | $3\frac{1}{4}$ -in., each.....\$0 85

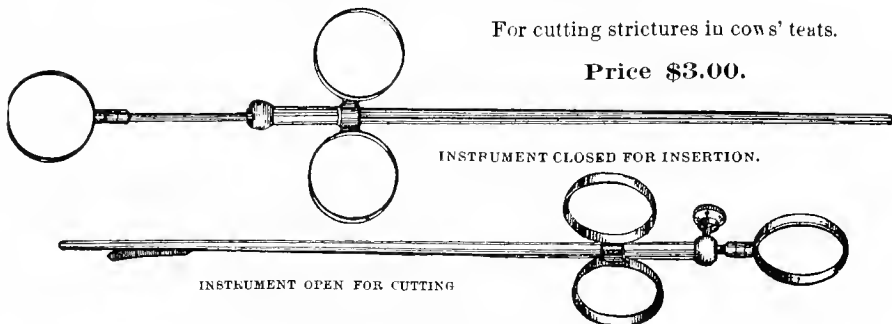
$2\frac{3}{4}$ " " 80 | $3\frac{3}{4}$ " " 95

$4\frac{1}{4}$ -in., each.....\$1 07

STRICTURE INSTRUMENTS.

For cutting strictures in cows' teats.

Price \$3.00.



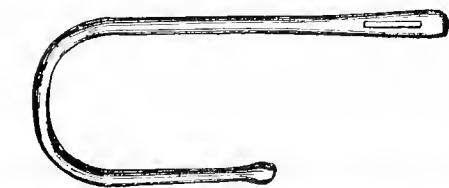
INSTRUMENT CLOSED FOR INSERTION.

INSTRUMENT OPEN FOR CUTTING

LEAD PROBE OR SOUND.

DIRECTIONS FOR USING LEAD PROBES. .

The probes are to be oiled or smeared with fluid extract belladonna, and inserted after each milking and worn between milkings. When teats are sore, milking tubes should be used. By the use of the probe the milk duct is kept from growing up. They may be used a few days or as many as the case demands. They should always be used after operations with the teat bistoury to prevent the parts from healing together as before. Made in three sizes, small, medium and large. Postpaid, 25c each.

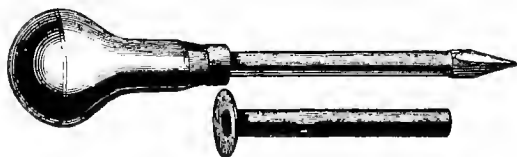


INSTRUMENT FOR OPENING COWS' TEATS.

We wish to call careful attention to the above instrument for opening obstructed cows' teats. It is made of best materials and with same care and skill used in the manufacture of instruments for the medical profession. We send it securely packed in a neat box, with full directions. Price 75 cents.

BULL PUNCHES OR TROCARS.

WITH SILVER PLATED SHEATHS.



For ringing bulls or punching bloated cattle.

No. 1 each, \$1 00

One-half dozen in a box.

FOR the benefit of our customers who frequently find themselves in need of goods and are unable to stand the delay necessary in ordering same by mail, we have compiled a telegraphic code, by the use of which they can wire us an order of considerable size without great expense. In using this code you will observe the necessity of spelling each word with great care, as the misplacement of a single letter might cause a serious misunderstanding. By using the different number codes in connection with the general codes you will see that it will be possible to order most any quantity of goods within reasonable telegraphic limits.

Acrostic Dale Dagger Banter Debatable Deaden Ball Debatable Belong Deaden

Ship by first freight 10 5-gal. Dubuque Pattern Milk Cans; 200 60-lb. Improved Elgin Style White Ash Tubs; 200 Parchment Linings and Circles complete for 60-lb. Tubs.

Abandon..... Answer by mail
Abase..... Referring to your letter of
Abash..... Referring to your letter of
Abate..... We will write fully today
Abdicate..... We have no letter from you
Abduct..... Will write you fully in a day or so
Abel..... Write, giving full particulars
Abet..... Answer by telegraph, day message
Abhor..... Answer by telegraph, night message
Abide..... Referring to our telegram of
Ability..... Referring to your telegram of
Abject..... Telegram immediately
Abjure..... Telegram reply as soon as possible
Ablaze..... We have no telegram from you
Abolution..... Why do you not telegraph
Able..... Shall we
Abnormal..... Will you
Aboard..... Will you accept
Abode..... Wire at once, accepted or not
Abolish..... Will greatly accommodate us if you will
Abolition..... According to contract
Abominable..... Not according to contract
Aboriginal..... To which add the cost of
Abortion..... In addition to
About..... How did you address
Above..... Was addressed to
About..... Please note an advance of
Abrade..... Would you advise
Abreast..... Would advise you to
Abridge..... Unless otherwise advised will assume
that
Abroad..... Will you agree to
Abrogate..... Will agree to
Abrupt..... Must have answer by
Abscess..... Will be in
Abscond..... Will be here
Absence..... Cash on delivery
Absent..... Cash in 30 days
Absolute..... Will not allow any commission
Absolution..... Commission will be allowed
Absolve..... Financial standing being unknown, we
will send goods C. O. D., unless
otherwise instructed
Absorb..... Kindly send references as to your finan-
cial standing or shall we ship by
freight with draft attached to bill
of lading
Abstain..... Will you agree to conditions
Abstemious..... Contract awarded
Abstinance..... Contract will be awarded
Abstract..... Will you extend credit
Absurd..... Have you decided
Abundance..... Have not decided
Abundant..... Have decided
Abuse..... Will guarantee delivery by
Abusive..... Cannot guarantee delivery before the
Abutment..... What is the capacity
Abysm..... Will do the best we possibly can
Academic..... Shall we do so
Academy..... Do so
Acanthus..... Can do nothing until
Accede..... What have you done about
Accelerate..... Will deposit sight draft on you today
unless advised to the contrary
for——dollars
Accept..... Please accept our draft for——dollars
Accept..... Send duplicate copy of invoice
Acceptable..... Have examined very carefully and
find
Acceptance..... Expenses to be paid by
Access..... Do not fail to
Accessible..... Have figured as close as possible
Accession..... Freight must be prepaid
Accident..... Freight rate per hundred pounds to
destination is
Acclaim..... What is freight rate per hundred pounds
Acclimate..... Guarantee the account
Acclivity..... Hold subject to your order
Accommodate..... Does not include
Accompanist..... Must be included
Accompany..... Will keep you fully informed
Accomplish..... Insist upon
Accord..... Letter in transit with full particulars
Accordance..... Shall we deliver goods on verbal
order of your Mr.——
According..... Advisable for you to place order at
once, prices tending to advance
Accordion..... Our Mr.——will call on you
Accost..... Get our instructions at——
Account..... Go to——and wait for instructions
Accrue..... Our board meets——have your
Mr.——there

ORDERS.

Acoustic..... Add to our order of
Acquaint..... Cancel our order of
Acquiesce..... Change our order of
Acquire..... Hurry forward goods on our order of
Acquirement..... Have you shipped goods on our
order? If not when will you ship
Acquisition..... Enter order if you can ship in
Acquit..... Hold for instruction on our order of
Acquittal..... If you cannot ship in time named
advise by telegraph.
Acre..... Instructions by mail
Acrimony..... Prepay freight
Acrobat..... Shipping instructions will be sent you
Across..... Ship immediately
Acrostatic..... Ship as soon as possible
Act..... Ship by express
Action..... Ship by fast freight
Active..... Ship quickest route
Acton..... Ship cheapest route
Actress..... Send tracer immediately for shipment of
Actual..... Wait receipt of letter before proceed-
ing with order
Actually..... Change order for
Actuate..... Send C. O. D. by express

ORDERS.

Acoustic Add to our order of
Acquaint Cancel our order of
Acquiesce Change our order of
Acquire Hurry forward goods on our order of
Acquirement Have you shipped goods on our
order? If not when will you ship
Acquisition Enter order if you can ship in
Acquit Hold for instruction our order of
Acquittal If you cannot ship in time named
advise by telegraph.
Acre Instructions by mail
Acrimony Prepay freight
Acrobat Shipping instructions will be sent you
Across Ship immediately
Acoustic Ship as soon as possible
Act Ship by express
Action Ship by fast freight
Active Ship quickest route
Acton Ship cheapest route
Address. Send tracer immediately for shipment of
Actual Wait receipt of letter before proceed-
ing with order
Actually Change order for
Actuate Send C. O. D. by express

CLOTH	CIRCLES	PARCHMENT
Baron	8½	Bean
Barouche	9	Bear
Barque	9½	Beard
Barrack	10	Bearer
Barrel	10½	Bearing
Barren	11	Beast
Barricade	11½	Beat
Barrister	12	Beating
Barrow	12½	Beau
Bartor	13	Beauteous
Base	13½	Beautiful
Basement	14	Beautify
Bashful	14½	Beauty
Basin	15	Beaver
Basis	15½	Beckon
CLOTH	SQUARES	PARCHMENT
Basque	6x 6	Bedaub
Bass	7x 7	Bedding
Baste	8x 8	Bedside
Bat	8x 9	Beech
Bate	9x 9	Beef
Bath	10x10	Beefsteak
Baton	8x11	Been
Battalion	9x12	Beetle
Batter	12x12	Befogged
Battery	10x15	Before
Battle	12x15	Begin
Bellow.....	Parchment linings for—lb. tubs	
Belong.....	Parchment linings and circles complete for—lb. tubs	
Beloved.....	Australian box linings	

Supply Code—Continued

CHEESE BANDAGE

Below.....— in. Seamless cheese bandage
Bench.....— in. Excelsior cheese bandage
Beneath.....— in. Readymade cheese bandage

CHEESE COLOR

Bent.....Hansen's Domestic cheese color
Benzine.....Royal Swiss cheese color

CHICKEN COOPS

Bequest.....Sites' ventilated chicken coops
Berate Standard chicken coops, K. D.
Bereave.....Standard turkey coops, K. D.

CHEESE GREASE

Beset.....Royal Swiss cheese grease
Besiege.....Johnson's fly-proof cheese grease
Betray....Cheese boxes (use number code to give sizes)
Beverage.....Cheese box material for—boxes (use number code to give sizes)

COOPERAGE STOCK

STAVES

STAVES		
Beyv.....	No. 1 staves, 30 in.	} Give kind of wood
Bewail.....	No. 1 staves, 28½ in.	
Beware.....	No. 2 staves, 30 in.	
Bewilder.....	No. 2 staves, 28½ in.	

HEADING

Bewitch.....	No. 1, 17½ in., hard
Bey.....	No. 1, 17½ in., soft
Beyond.....	No. 2, 17½ in., hard
Bias.....	No. 2, 17½ in., soft
Bicker.....	No. 1, 19½ in., hard
Bicycle.....	No. 1, 19½ in., soft
Bid.....	No. 2, 19½ in., hard
Bide.....	No. 2, 19½ in., soft
Bier.....	No. 2, 18½ in., soft

CURD KNIVES

Binding.....Horizontal curd knife
Biology.....Perpendicular curd knife

CLEANSING POWDER

Bipeds..... Ideal cleansing powder

EGG CASES

Black.....	No. 1, white pine	—with fastener	
Blackball.....	No. 1, whitewood	—with fastener	
Blade.....	No. 2, whitewood	—no fasteners, sawed and dressed	
Blamable.....	No. 2, whitewood	—no fasteners, veneer S. & D. ends	
Blameless.....	No. 2, white pine	—no fasteners, smooth-sawed	
Blanch.....			30 dozen
Bland.....			36 dozen

EGG CASE FILLERS

Blemish	No. 1, handmade fillers
Blend	No. 2, ventilated strawboard fillers
Blght	Medium Ideal odorless fillers
Blind	Medium handmade strawboard fillers
Bluk	No. 2, regular handmade strawboard fillers

HOSE

Blue.....	3-ply conductor hose
Bluff.....	4-ply conductor hose
Blunder.....	Suction hose
Blunt.....	Steam hose
Blur.....	Wirebound hose

MILK JARS

Bodice.....	Half pint tin top milk jars
Bodied.....	1 pint tin top milk jars
Bodily.....	1 quart tin top milk jars
Bogus.....	Half pint Ideal milk jars
Boil.....	1 pint Ideal milk jars
Boisterous.....	1 quart Ideal milk jars

PERFECTION GATES

Bonfire.....	1½-inch inside thread
Bonnet.....	1½-inch outside thread
Bonny.....	1½-inch inside thread
Bonus.....	1½-inch outside thread
Bony.....	2-inch inside thread
Booby.....	2-inch outside thread
Book.....	3-inch weigh can gate

POULTRY BOXES

Border No. — poultry shipping boxes

RENNET EXTRACTS AND TABLETS

Boom	Hansen's rennet extract
Boost	Hansen's rennet tablets

SALT

Boudoir.....	Genesee F. F. salt
Bough.....	Diamond crystal salt
Bought.....	Ashton F. F. salt
Bounce.....	Cheese salt

SCALE BOARDS

Borax.....—inch Scale boards (use number
code for size)

TUB FASTENERS

Bovine.....	Common tub fasteners
Bower.....	Riveted nail fasteners
Bowled... ..	Universal fasteners
Bowl.....	Star tub fasteners

TEST BOTTLES

Brandy.	Babcock test bottles
Brass.	Babcock cream test bottles
Brave.	Russian test bottles
Bravado.	Ohlsson test bottles

THERMOMETERS

Bravery.....Common floating thermometers
Brawl.....Nickel-plated flange thermometers
Brawn.....New floating thermometers

VALVES

Bray.....	— in. Jenkins	Brass globe valves
Brazen.....	— in. Jenkins	Brass check valves
Breach.....	— in. Jenkins	Brass angle valves
Bread.....	— in.	pop safety valve
Break.....	— in.	ball safety valve
Breakage.....	— in.	common Brass globe valve
Breast.....	— in.	common Brass check valve

MACHINERY CODE

BUTTER WORKERS

Cabal.....	Mason worker with plain table
Cabbage.....	Mason worker with plain table and galvanized castings
Cabin.....	Mason worker with rim guard
Cabinet.....	Mason worker with rim guard and galvanized castings
Cable.....	Fargo upright worker
Cackle.....	Alpha butter worker
Cactus.....	National " "

BABCOCK TESTERS

Calabash.....	Ideal 20 bottle tester
Calamus.....	" 24 " "
Calamitous.....	" 32 " "
Calanilly.....	" 40 " "
Calimine.....	Roe 4 " " hand tester
Calcine.....	" 8 " " "
Calcium.....	" 12 " " "
Calculate.....	" 24 " " "

BUTTER TUB STEAMER

Calendar.....	Ideal butter tub steamer and soaker
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BUTTER PRINTERS

Callous.....	Lafayette butter printer
Callow.....	" " " with table
Calm.....	Nesbitt's patent self weighing printer
Calinness.....	IXI self gauging printer
Calomel.....	Reid's automatic iron clad
Calumny.....	Acme butter printer

BOILER

See code words in connection with boiler lists

CHURNS

Canister.....	Pine churn
Canker.....	Ash churn
Cannibal.....	" Cedar churn
Cannon.....	No. — Victor churn and worker
Canoe.....	" — Disbrow churn and worker

CHEESE PRESSES

Caprice.....	Frazer's gang press
Capricious.....	Frazer's combination gang press
Capscum.....	Helmer new style gang press
Capsie.....	Steel gang press
Capsule.....	Patent Sprague automatic adjustable steel gang press
Captain.....	Standing cheese press

CHEESE BOX MACHINES

Captive.....	Roe pattern cheese box machine
Captor.....	Elgin " " " "

CREAM COOLERS

Capture.....	No. — Star cream cooler, elevated water
Caramel.....	No. — Star cream cooler with syphon
Caravan.....	" Ideal cream cooler
Caraway.....	Snyder's cream cooler

CURD MILLS

Cargo.....	Pohl self-salting curd mill
Carman.....	" Schaubler curd mill
Carnage.....	" Harris curd cutter

ENGINES

See code words in connection with engine lists

FIRE EXTINGUISHERS

Cashier.....	Perfection fire extinguisher
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HANGERS

Catchup.....	17x12 in. hangers
Category.....	18x12 in. "
Cater.....	18x12 in. "

HEATERS

Caterer.....	Climax milk heater
Cathartic.....	Ideal milk heater

PASTEURIZERS

Catholic.....	—gal. Potts' pasteurizer
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PIPE TOOLS

Ceiling.....	Stock and dies, 1/2 to 2 inches
Celebrate.....	" " 1/2 to 1 1/2 "
Celerity.....	" " " Pipe vise
Celery.....	Brown's adjustable tongs, 3/8 to 1 inch
Celestial.....	" " " 1/2 to 1 1/4 "
Celibacy.....	" " " 1 to 2 "
Cell.....	No. 1 Barnes' pipe cutter
Celluloid.....	No. 2 " "
Cement.....	No. 1 Stanwood pipe cutter
Cemetery.....	No. 2 " "
Cense.....	No. 1 Saunders' " "
Ceusor.....	No. 2 " "
Census.....	No. 1 Alligator wrench
Centennial.....	No. 2 " "
Centiped.....	No. 3 " "
Center.....	12-inch Combination " "
Central.....	15 " " "
Century.....	10 " Stilson " "
Centurion.....	14 " " "
Ceremony.....	10 " Trimmo " "
Certain.....	14 " " "
Certificate.....	No. 1 Parker's vise
Certify.....	No. 2 " "
Cession.....	No. 3 " "

PULLEYS

Channel.....	Wood split pulley
Chant.....	" Iron " "

(Use number codes to give sizes)

PUMPS

Charity.....	No. 0 Dean upright pump
Charm.....	No. 0 " horizontal "
Charnel.....	" B Marsh " "
Chart.....	" B B " "
Charter.....	4x 6 " " "
Chase.....	4x 8 " " "
Chasm.....	6x12 " " "
Chastise.....	Crank suction and force pumps
Chattel.....	Crank suction and force pump for deep well
Cheap.....	No. 1 rotary pump
Cbeat.....	No. 1 Pitcher " "
Chest.....	No. 2 " "

REFRIGERATING MACHINES

Chestnut.....	Stallman — ton compressor
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SCALES

Chickory.....	—lb. Roberts' salting scale
Chide.....	—lb. Fairbanks' double beam "
Chief.....	—lb. " five " "
Chilblain.....	—lb. Champion double " "
Childish.....	—lb. Howe five " "
Chimb.....	—lb. " double " "
Chime.....	—lb. Jones' " " "
Chimney.....	—lb. " five " "

Machinery Code—Continued

SEPARATORS

Chisel.....	Reid separator	
Chlorate.....	Springer	
Chocolate.....	Russian	
Choice.....	United States	
Choir.....	Alpha Acme belt	
Choke.....	" turbine	
Cholera.....	" No. 1 belt	
Choral.....	" No. 1 turbine	
Chord.....	" No. 2 belt	
Chorister.....	" No. 2 turbine	
Chorus.....	De Laval Standard	
Chowder.....	" turbine	
Chrome.....	Humming bird No. 0 De Laval	
Chronic.....	Improved baby, No. —	
Chrysalis.....	Improved dairy turbine	

SKIMMED MILK WEIGHER

Cigar.....	Ideal skimmed milk weigher	
Cinchona.....	"Yates"	

SKIMMED MILK STERILIZER

Cinder.....	Jensen's skimmed milk sterilizer	
Cipher.....	Walker's skimmed milk sterilizer	

TANKS

Citadel.....	No. — Ideal galvanized iron steel tanks	
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TRUCKS

Clamber.....	Platform truck	
Clamor.....	Butter and cheese	
Clamp.....	New York butter	
Claret.....	Chicago Daisy	
Clarify.....	"Bag	

VATS

Clerk.....	Wood jacket tempering vat	
Clever.....	Galvanized	
Climate.....	gal. cream vat, with ice sides	
Climax.....	" " " " ends	
Clipper.....	gal. cream vat, with ice sides and ends	
Clique.....	gal. twin vat, with ice ends	
Cloister.....	" " " " sides	
Closet.....	gal. tw n vat, with ice sides and ends	
Clothier.....	gal. milk vat	

WEIGH CANS

Cobweb.....	gal weigh can	
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WASH SINKS

Cock.....	Curtis wash sink	
Cocoa.....	Stationary wash sink	
Coddle.....	Portable wash sink	

NUMBER CODE

Dabble.....	1
Dabster.....	2
Dado.....	3
Daft.....	4
Dagger.....	5
Dahlia.....	6
Daily.....	7
Daintily.....	8
Daisy.....	9
Dale.....	10
Damage.....	11
Damask.....	12
Damp.....	13
Damsel.....	14
Dance.....	15
Dandelion.....	16
Dandy.....	17
Danger.....	18
Dangerous.....	19
Dangle.....	20
Dark.....	25
Darken.....	30
Daunt.....	35
Dawn.....	36
Daylight.....	40
Daze.....	45
Dazzle.....	50
Deaden.....	60
Deadly.....	70
Deafen.....	75
Dearth.....	100
Debar.....	125
Debark.....	150
Debase.....	175
Debatable.....	200
Debate.....	250
Debauch.....	300
Debility.....	350
Debit.....	400
Debris.....	500
Debonair.....	600
Debut.....	700
Debutant.....	800
Decade.....	900
Decamp.....	1000

POUNDS

Decree.....	1 lb.
Decrepit.....	2 "
Decry.....	3 "
Dedicate.....	4 "
Deduce.....	5 "
Deduct.....	6 "
Deduction.....	7 "
Deface.....	8 "
Defalcate.....	9 "
Defame.....	10 "
Default.....	20 "
Defaulter.....	25 "
Defeat.....	30 "
Defect.....	35 "
Defective.....	40 "
Defence.....	45 "
Defend.....	50 "
Defendant.....	55 "
Defensive.....	60 "
Defer.....	75 "
Deference.....	100 "
Defiance.....	200 "
Defiant.....	300 "
Deficient.....	400 "
Deficit.....	500 "
Defied.....	600 "
Defile.....	700 "
Defilement.....	800 "
Define.....	900 "
Definite.....	1000 "

GROSS

Delicacy.....	1 gross
Delicate.....	2 "
Delicious.....	3 "
Delight.....	4 "
Delighted.....	5 "
Delineate.....	6 "
Delinquent.....	7 "
Delirious.....	8 "
Delirium.....	9 "
Deliver.....	10 "
Delta.....	15 "

Number Code—Continued

Gross—Continued.

Delude	20 gross
Delusion	25 "
Delusive	30 "
Delve	35 "
Demand	40 "
Demean	45 "
Demeanor	50 "

YARDS

Desk	5 yds.
Desolate	10 "
Desolation	15 "
Despair	20 "
Desperado	25 "
Desperate	30 "
Despise	35 "
Despite	40 "
Despoil	45 "
Despond	50 "
Despot	55 "
Despotic	60 "
Despotism	65 "
Dessert	70 "
Destine	75 "
Destiny	100 "
Destitute	150 "
Destroy	200 "
Desultory	250 "
Detach	300 "
Detail	350 "
Detain	400 "
Detect	450 "
Detection	500 "

SIZES FOR PIPE, HOSE, SHAFT-
ING, PULLEYS, ETC.

Devoid	$\frac{1}{4}$ -inch
Devoir	$\frac{1}{4}$ "
Devolve	$\frac{3}{8}$ "
Devote	$\frac{1}{2}$ "
Devotee	$\frac{5}{8}$ "
Devotion	$\frac{3}{4}$ "
Devout	1 "
Dewy	$\frac{1}{4}$ "
Dexterity	$\frac{1}{2}$ "
Dexterous	$\frac{1}{8}$ "

FRACTIONS

Disown	$\frac{1}{4}$
Disparage	$\frac{1}{4}$
Disparity	$\frac{3}{8}$
Dispatch	$\frac{1}{2}$
Dispel	$\frac{3}{8}$
Displace	$\frac{3}{4}$
Dispose	$\frac{7}{8}$

DISCOUNTS

Each	5 per cent
Eager	10 "
Eagle	15 "
Earl	20 "
Earn	25 "

SIZES FOR PIPE, HOSE, SHAFT-
ING, PULLEYS, ETC.—Continued

Diabetes	$\frac{1}{2}$ inch
Diabolical	$\frac{1}{4}$ "
Diadem	$\frac{1}{8}$ "
Diagnosis	2 "
Diagonal	$2\frac{1}{2}$ "
Diagram	3 "

WIDTH OF BELTING, ETC.

Difference	1 inch
Difficult	$1\frac{1}{2}$ "
Diffidence	2 "
Diffuse	$2\frac{1}{2}$ "
Digest	3 "
Digestible	$3\frac{1}{2}$ "
Digestion	4 "
Dignity	$4\frac{1}{2}$ "
Digress	5 "
Digression	$5\frac{1}{2}$ "
Dilapidate	6 "
Dilate	$6\frac{1}{2}$ "
Dilatory	8 "
Dilemma	8 "
Diligence	10 "

GALLONS

Discuss	1 gal
Disdain	2 "
Disease	3 "
Disfavor	4 "
Disfigure	5 "
Disgorge	8 "
Disgrace	10 "
Disguise	20 "
Disgust	25 "
Dishearten	50 "
Dishonest	100 "
Dishonor	200 "
Disincline	250 "
Disinfect	300 "
Disinherit	350 "
Disinter	400 "
Disdain	500 "
Dislike	600 "

DISCOUNTS—Continued.

Earnest	30 per cent
Earth	$33\frac{1}{3}$ "
Ease	35 "
Easel	$37\frac{1}{2}$ "
East	40 "
Easier	45 "
Eatable	50 "
Eaves	55 "
Ebonize	60 "
Ebony	65 "
Eccentric	70 "
Echo	75 "
Eclat	80 "
Eclipse	85 "
Economic	90 "
Economy	95 "

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